

Department of the Interior Law Enforcement Functional Evaluation An Inventory & Comparison of Business Functions



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1 EXECUTIVE SUMMARY

Focused on the Law Enforcement (LE) information systems, the LE Study empowers management to make "correct" decisions that maximize Interior's information resources, resulting in improved Program mission performance and be responsible stewards of America's public resources. The LE Study provides greater understanding of the Department of the Interior's (DOI, Interior) LE information systems.

1.1 Study Objectives, Approach, and Level of Effort

The LE Study objectively inventories, evaluates and compares business functionalities of the Interior's LE systems. The study focused on "Law Enforcement Management Information System" (LEMIS) and "Law Enforcement-Incident Management And Gathering System" (LE-IMAGS).

- The systems' LE business functions were inventoried and characterized with respect to 1) enacted performance requirements, 2) business process requirements, 3) data/information requirements, and 4) operational/service requirements using the Federal Enterprise Architecture (FEA) perspectives.
- The systems' business functions were evaluated, addressing the questions:
 - What should each system function be doing?
 - What is each system function doing?
 - What is the gap between the "what should be" and "what is?"
- The systems' LE functions were compared to Interior's LE system of record, "Incident Management, Analysis and Reporting System" (IMARS) to identify overlapping functions, interoperability requirements and opportunities for consolidation.
- The systems' non-LE functions were compared to Interior's non-LE systems of record to identify overlapping functions and interoperability requirements.

In developing an understanding of Interior's Law Enforcement business functions, the study identified, evaluated and compared 31 data themes, 20 processes, and over 350 business requirements. The study verified information through approximately 20 collaborative meetings with stakeholders.

1.2 Study Conclusions

LEMIS

- LEMIS manages FWS OLE data, including:
 1. Case/Incident Management, which includes:
 - a) Wildlife Imports/Exports,
 - b) Criminal Intelligence,
 - c) Regulation/Violation,
 - d) Cooperating Private Individuals,
 - e) Persons of Interest,
 - f) Officers Involved,
 - g) Forensic Analysis Results, and
 - h) Evidence,
 2. LE Officer Personnel,
 3. OLE Training Programs,
 4. Non-LE Property,

- 5. Wildlife Species,
- 6. Bird Fatality Management,
- 7. Financial Transactions, and
- 8. Strategic Performance Measure Metrics information.
- LEMIS is a well-planned and designed system. All of its functions map to identifiable requirements and legal mandates. It meets the specific needs of its FWS Office of Law Enforcement (OLE) users.
- LEMIS business processes and services are highly coupled. They integrate the LE functions and many non-LE functions defined in the LE Manual, standard operating procedures (SOP) and user guide. This integration offers a very intuitive system that is popular for the LE Officers and FWS users. Decoupling these business process and services will have performance and cost impacts, including updates to existing manuals, SOPs and user guides. To maintain current services, reconfiguration efforts will have to address these design considerations.
- The current LEMIS business services have proven performance by field users.
- LEMIS does not share or exchange case/incident information with other law enforcement systems, including the FWS LE-IMAGS, the Departmental or other external systems.
- The LEMIS LE and non-LE functions are tightly integrated. This increases the design complexity and makes change management more difficult (e.g. introducing system-to-system data interoperability with other systems like IMARS and FBMS).

LE-IMAGS

- LE-IMAGS manages FWS OLE data, including:
 1. Case/Incident Management for Wildlife Refuges, which includes:
 - a) Offense/Regulation, Arrests, Warnings, and Violations,
 - b) Persons of Interest,
 - c) Vehicles, Firearms, Drugs/Drug Items, and other Property Involved,
 - d) Easements, and
 - e) Officers Involved,
 2. LE Officer Personnel,
 3. LE Training and Evaluation Programs,
 4. Non-LE Property and Stations, and
 5. Policies, Standards, and Operating Procedures information.
- LE-IMAGS business processes and services are coupled. They integrate the LE functions and many non-LE functions. Like LEMIS, the integration offers very intuitive system that is popular for the LE Officers and FWS Refuge users. Decoupling these business process and services will have performance and cost impacts. To maintain current services, reconfiguration efforts will have to address these design considerations.
- The current LE-IMAGS business services have proven performance by Refuge users.
- LE-IMAGS does not share case/incident information with other law enforcement systems, including the FWS LEMIS, the Departmental and other external systems.

Significant Overlaps – The study team found functional overlaps, including:

- **Case Management** - All systems generally manage the same case/incident information. This includes officers, evidence, arrests, warnings & charges, persons of interest, vehicles property, other property, case and case tracking information.

- **LE Personnel (Officers)** - All systems manage similar personnel information on Officers with the exception of "Field Training Evaluation Program" records.

Unique/Not Overlapping Functions – There are specific differences between the systems:

- LE-IMAGS has a unique integrated geographic information system (GIS) functionality that manages case geo-location information.
- LEMIS has a unique "Undercover Bookkeeping" function that tracks financial ledgers for their undercover operation front businesses.
- LEMIS has unique non-LE modules, including: budgeting, the property tracking of the "National Eagle Repository" and "Field Training Evaluation Program".

Opportunities to Consolidate

- There is an opportunity to consolidate specific LE functions into one system¹. The overlapping LE functions include: case/incident management, criminal intelligence, evidence/LE property, and LE personnel (Officer) information. The three systems' LE functions are very similar with regards to data, business process and LE services. From a business functionality perspective, one system could effectively replace the three systems.
- IMARS provides an opportunity for the consolidated gathering, reporting, and exchanging of LE information across DOI and with other law enforcement Federal, State, and Local organizations. This approach would support the Information Sharing Environment (ISE) requirements, including the Suspicious Activity Reports (SAR) and National Incident Based Reporting System (NIBRS) information sharing with the FBI and other agencies.

Consolidation Costs and Issues

- Consolidating the LE functions will require time and collaboration. There will be some architectural changes.
- Consolidating the non-LE functions (e.g. Bird Fatality geospatial information) would have major change issues, including: reengineering, time and collaboration. Because the business processes, data and LE services architectures are unique, the architectural changes would require a significant reengineering effort. Issue: the non-LE functions are integrated and dependent on the LE information.

1.3 Sponsorship & Management Summary

The DOI office of Public Safety, Resource Protection and Emergency Services co-sponsored the LE Study addressing its responsibilities for leadership and oversight of Interior's LE program. The U.S. Fish and Wildlife Services (FWS) Office of Law Enforcement (OLE) co-sponsored the LE Study addressing its responsibilities for leadership and oversight of law enforcement. Interior's Office of the

¹ Consider using an alternate technical design approach that could facilitate consolidation and would preserve the field accessible LEMIS and LE-IMAGS user interfaces. IMARS could be used as the "back office" data processing and management system.

Chief Information Officer (OCIO) managed the LE Study addressing its information resource management responsibilities under the authorities of specified in:

- The Clinger-Cohen Act (CCA), formerly the Information Technology Management Reform Act of 1996 (ITMRA);
- The Paperwork Reduction Act (PRA), 1980
- Office of Management and Budget (OMB) Memorandum (M-11-29)

2 STUDY PURPOSE

Interior's "LE Information Systems" study objectively inventories, evaluates and compares business functionalities of the Interior's LE systems. The inventory, evaluation and comparison will support decisions that best allocate information resources and maximize mission Performance. The study outcome objectives are to:

- Maximize Interior's LE Program's mission capabilities and Performance
- Best utilize Interior's information resources
- Empower and facilitate management's decision-making responsibilities (make good decisions)
- Be good stewards of public resources
- Be responsible trustees to America's citizens

2.1 Study Goals

Focused on LEMIS and LE-IMAGS systems, the study goals are as follows:

- Inventory and accurately characterize the business functions' (1) *enacted* Performance requirements, (2) business process requirements, (3) data/information requirements and (4) operational/service requirements using the Federal Enterprise Architecture (FEA) perspectives;
- Evaluate the business functions' "*what is*" state to the "*what should be*" requirements, identifying any deltas or Performance gaps;
- Compare their LE business functions to Interior's LE system-of-record, IMARS, overlapping functions;
- Compare the non-LE business functions to the other systems'-of-record overlapping functions;
- Provide the baseline understanding for determining the best use and best allocation of DOI's LE information resources.

2.2 Study Scope

What is In-Scope?: The study effort inventories and evaluates both the LE and non-LE business functions of Fish and Wildlife Services':

- Law Enforcement Management Information System (LEMIS), and
- Law Enforcement-Incident Management And Gathering System (LE-IMAGS)

The study compares these systems to Interior's systems-of-record, focused on only the overlapping functions (see Figure 1). For LE functions, the system-of-record is IMARS. For non-LE functionality, the primary system-of-record is the Financial Business Management System (FBMS).

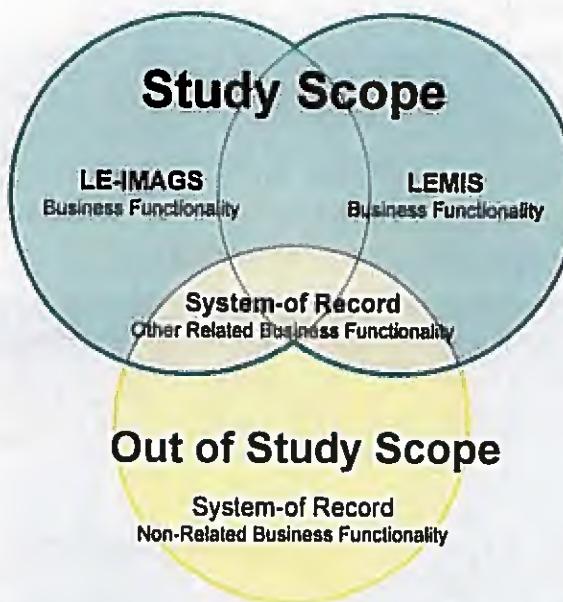


FIGURE 1: WHAT'S IN-SCOPE AND OUT-OF-SCOPE

What is Not In-Scope?: The study excludes examination of the individual implementation technologies of the analyzed systems (e.g., mapping to FEA's Technical Reference Model, TRM). This study also excludes any systems of record functions that do not specifically overlap with the LE functionality of LEMIS and LE-IMAGS. Figure 1 illustrates the Venn diagram view of what is in scope and out of scope for this study.

2.3 Study Effort Summary

The study effort consisted of an integrated team working collaboratively over the three month period of Performance (January 13th 2012 – April 6th 2012). Two primary data gathering techniques were employed during this study: (1) the receipt and review of existing systems' documentation, and (2) interviews with system experts leveraging Web meeting technologies. Additional details on the study team, interviews and the documents reviewed are provided in the following sections. Also, Section 3.0 of this study provides a detailed description of the study participants, stakeholders and sponsors.

2.3.1 Study Team Members

The DOI LE Study was conducted by Booz Allen Hamilton in coordination with the DOI Office of the Chief Information Officer (OCIO) and FWS. The internal study team members are presented below in Table 1 (note: Section 3.0 provides additional details on the DOI and FWS study participants and stakeholders).

Name	Organization	Role
Ryan Stone	Booz Allen Hamilton	Project Manager
Dave Matta	Booz Allen Hamilton	Technical Lead
Megan Conner	Booz Allen Hamilton	Analyst
Jairo Milchtein	Booz Allen Hamilton	Analyst
Alan McDonald	Booz Allen Hamilton	LE Expert

TABLE 1: STUDY CONTRACTOR TEAM

2.3.2 Interviews Conducted

Table 2 provides a summary of the interviews conducted during the study. For the purposes of this study, an interview is defined as a formally scheduled meeting with a predefined agenda. The majority of interviews were conducted virtually through the use of teleconferencing and web-sharing software and were facilitated by a Booz Allen study member. Participants included various system owners, sponsors and experts, including supporting contractor staff (note: Section 3.0 provides additional details on the DOI and FWS study participants and stakeholders).

Date	Relevant System	Meeting Title	Participants*
1/31/2012	All	Law Enforcement Functional Evaluation Kickoff	Will Brimberry, Jerry Olmstead, Faisal Ahmed, Larry Grosz, Danielle Smith, Colleen Hageman, Lizz Pena, George Volentir, Ryan Stone, Dave Matta, Megan Conner, Alan McDonald
2/21/2012	All	Review of DOI Law Enforcement Functional Evaluation Study Plan	George Volentir, Jerry Olmstead, Danielle Smith, Colleen Hageman, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner
2/23/2012	LEMIS	LEMIS Walkthrough	George Volentir, Mike Macleod, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner, Alan McDonald
3/7/2012	LEMIS	Second Review of LEMIS	George Volentir, Mike Macleod, Mark Jones, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner, Alan McDonald
3/13/2012	LEMIS	LEMIS Follow-On	George Volentir, Mike Macleod, Mark Jones, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner, Jairo Milchtein
3/22/2012	LEMIS	Discussion on Bird Fatalities	George Volentir, Mike Macleod, Mark Jones, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner, Jairo Milchtein
1/30/2012	LE-IMAGS	Introduction to LE-IMAGS	Jerry Olmsted, Lizz Pena, Mike Brewer, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner
3/7/2012	LE-IMAGS	Second Round Review of LE-IMAGS	Jerry Olmsted, George Volentir, Mike Brewer, Dave Matta, Ryan Stone, Megan Conner
3/19/2012	LE-IMAGS	Follow up conversation on LE-IMAGS	Jerry Olmsted, George Volentir, Mike Brewer, Dave Matta, Ryan Stone, Megan Conner
2/27/2012	IMARS	IMARS Demo	Colleen Hageman, Danielle Smith, Will Brimberry, John DeKoning, Dave Matta, Ryan Stone, Megan Conner
3/14/2012	IMARS	IMARS/Booz Allen Hamilton Second Meeting	Faisal Ahmed, Colleen Hageman, Danielle Smith, Will Brimberry, John DeKoning, Dave Matta, Megan Conner, Jairo Milchtein
3/21/2012	IMARS	IMARS/Booz Allen Hamilton Third Meeting	Colleen Hageman, Danielle Smith, Will Brimberry, John DeKoning, Dave Matta, Ryan Stone, Megan Conner, Jairo Milchtein
3/19/2012	FBMS	FBMS Review	Rayleen Cruz, Debra Lange, Michael Johnston, Will Brimberry, Dave Matta, Ryan Stone, Megan Conner, Jairo Milchtein

*Participant roles and organizations can be found in Section 3.0

TABLE 2: INTERVIEWS CONDUCTED

2.3.3 Files Reviewed

Several files were requested and received during the initial study kick-off meeting (held 1/31/2012). These initial documents are listed below in Table 3. Throughout the duration of the study, additional documents were discovered and researched (e.g., U.S. Code of Law (USC-16), Code of Federal Regulations (CFR-50), and the FWS Service Manual). For a complete list of all document sources pertaining to this study, please see Table 3.

Relevant System	Document Title	Description
LEMIS	LEMIS FRD_OLEv1.2.doc	Descriptive doc (95 pgs) describes each section of LEMIS and explains the purpose of each subsystem and what is captured in each. Charts illustrating database relationships
LEMIS	LEMIS FRD_OLEv1.2 Addendum A.doc	Table and Field definitions- same charts repeated
LEMIS	Gap Analysis FWSOLE.doc	Analysis compare capabilities available in LEMIS with those that have been or will be developed in IMARS
LE-IMAGS	OAO 2011.doc	Operational analysis CPIC
LE-IMAGS	Data_LEIMAGS_Interfaces_LE.xls	List of data source with which LE-IMAGS interfaces
LE-IMAGS	LE-IMAGS_RolesAndSecurity.xls	Roles of different types of officers and tasks they perform
LE-IMAGS	IMARS FWS RLE Requirements JAN 04	Defines the high-level business requirements, user needs, and features of the IMARS/FWS/RLE sub-systems. Describes what the IMARS/FWS/RLE software will do, not how it will do it.
LE-IMAGS	IMARS FWS RLE Requirements Updated AUG (11)2	Same doc as above, updated with additional graphics
IMARS	IMARS Project Management Plan_V4_042809	IMARS PMP describes the project management approach that will be used to govern the IMARS project
IMARS	Functional Requirements Doc v2.4 - 082008	Requirements Document
IMARS	IMARS Enterprise Architecture.doc	Provides evidence of the IMARS solution to the LE Blueprint
IMARS	IMARS Solution Architecture - V3.0 08-16-2009	Architecture overview of IMARS solution by leveraging client server tech. Provides architecture framework and IT building blocks
IMARS	Copy of Appendix A_IMARS_FRD Requirements Extract.xls	IMARS RMS requirements
IMARS	Copy of Appendix B Modules A-N Requirements Extract.xls	IMARS CAD, Mapping, EMS, & HAZMAT requirements
IMARS	IMARS User Acceptance Test Plan_v1.0_signed.doc	IMARS evaluation phase and the planning of the user acceptance tests
ALL	DOI-Law-Modernization Blueprint_v1_1.doc	LE LOB Blueprint that identifies issues and opportunities for business improvement

TABLE 3: INITIAL STUDY DOCUMENTATION

2.3.4 Systems Reviewed

Table 4 presents the list of systems analyzed during the study. Both short and descriptive system names are provided along with the respective sponsoring organizations.

System Name (Short)	System Name (Long)	Sponsoring Organization
LEMIS	Law Enforcement Management Information System	U.S. FWS Office of Law Enforcement
LE-IMAGS	Law Enforcement Information & Gathering System	U.S. FWS National Wildlife Refuge System
IMARS*	Incident Management, Analysis and Reporting System	DOI Office Law Enforcement and Security
FBMS*	Financial and Business Management System	DOI Office of Acquisition and Property Management (PAM) / FBMS Program Office

* - denotes a designated system-of-record for the Department of Interior

TABLE 4: SYSTEMS REVIEWED

3 STUDY STAKEHOLDERS, SPONSORS, & MANAGEMENT

This section details the study's primary stakeholders, sponsoring offices and management teams, including the DOI participants that were engaged throughout the study's data collection and review efforts.

3.1 Study Stakeholders and Participants

Given the study's focus on the U.S. FWS' LE business systems, LEMIS and LE-IMAGS, the primary user groups analyzed were FWS Law Enforcement Officers (LEOs). Several categories of LEOs were identified during the study, and vary depending upon the primary business processes that each conduct. For example, Wildlife Inspectors are a specialized type of FWS LEO which conduct the business processes associated with inspecting imports and exports of designated endangered species across U.S. borders. Table 5, below, provides a detailed list of the categories of FWS LEOs analyzed during this study.

LE User Role	Description
FWS Officer	A general term for FWS individuals carrying out FWS LE business processes (e.g., conducting investigations, collecting intelligence).
Regional Officer	A specific type of FWS Officer, the Regional Officer has oversight responsibilities for all of the Zones within their Region. This includes the cases / investigations being conducted across those Zones.
Zone Officer	Similar to a Regional Officer, the Zone Officer is a specific type of FWS Officer that has oversight responsibilities for the cases / investigations being conducted within their associated Zone.
Case Officer	Upon creation of a new case (either within LEMIS or LE-IMAGS), the FWS Officer becomes the associated Case Officer. The Case Officer's cases are reviewed and approved by their associated Zone Officers and ultimately the Regional Officer for their Zone.
Field Training Officer	Field Training Officers are responsible for conducting the Field Training program (FTEP) curriculum for incoming recruits and/or periodic refresher training. Field Training Officers leverage the LEMIS and LE-IMAGS systems to help them create their courses, attendee lists and daily scores for the individual FWS Officers.
Refuge Officer	An FWS Officer specialized within the National Wildlife Refuge area of LE, for example those laws pertaining to Easements.
Special Agent	FWS Officers specialized in conducting and leading investigations to enforce Federal wildlife laws across the country. Example activities include surveillance, undercover operations, making arrests and preparing cases for court.
Wildlife Inspector	A specialized FWS Officer role focused on the review of imports / exports of endangered species across U.S. borders. Responsibilities include the validation of appropriate licenses/certificates and the possible confiscation of goods.
Non-LE Supervisor	A non-LE role with administrative tasks such as management and budgeting responsibilities.

TABLE 5: FWS LAW ENFORCEMENT USER ROLES

Central to the effectiveness of this study was the close coordination and participation of the business system owners and office leads from across DOI. These individuals provided instrumental support to the study's data collection efforts, including participating in the interviews and system reviews found in Section 2, Table 2. These individuals, and their associated roles, are defined in Table 6.

Name	Organization / Office	Title / Function	Relevant System
George Volentz	DOI / FWS / OLE	LEMIS Business & Technical Manager	LEMIS
Mike MacLeod	DOI / FWS / OLE	LEMIS Subject Matter Expert	LEMIS
Mark Jones	DOI / FWS / OLE	LEMIS Security Administrator	LEMIS
Jerry Olmsted	DOI / FWS / NWRS	LE-IMAGS Business Manager	LE-IMAGS
Faisal Ahmed	DOI / PMB / OLES	IMARS Program Manager	IMARS
Danielle Smith	DOI / PMB / OLES	IMARS Program Administrator	IMARS
Colleen Hageman	DOI / PMB / OLES	IMARS Program Coordinator	IMARS
Rayleen Cruz	DOI / PAM / FBMS	FBMS Business Information Manager	FBMS

TABLE 6: DOI BUSINESS SYSTEM OWNERS AND KEY STUDY PARTICIPANTS

3.2 Study Sponsors and Management

The Department of the Interior office of Public Safety, Resource Protection and Emergency Services co-sponsored the "Law Enforcement Information Systems: *An Inventory & Comparison of Business Functions*" study ("LE Study") addressing its responsibilities for leadership and oversight of Interior's LE program.

FWS OLE co-sponsored the LE Study addressing its responsibilities for leadership and oversight of law enforcement.

Interior's OCIO managed the LE Study addressing its information resource management responsibilities under the authorities of specified in:

- The Clinger-Cohen Act (CCA), formerly the Information Technology Management Reform Act of 1996 (ITMRA);
- The Paperwork Reduction Act (PRA), 1980
- Office of Management and Budget (OMB) Memorandum (M-11-29)

3.3 Study Management

The management of this study was conducted following the Project Management Institute's (PMI[®]) best practices as articulated via PMI's Project Management Body of Knowledge (PMBOK[®] Guide)². Program management responsibilities were coordinated through the OCIO program office. Under the program office, the contractor team, led by Booz Allen Hamilton, oversaw the study activities. The various roles and responsibilities of both the program office and contractor team are described below.

3.3.1 Program Management

Under the Office of the Chief Information Officer, the program office managed the LE Study, including:

- Developed the initial planning and contracting approach
- Developed and wrote the scope and deliverable specifications in concert with the Interior's and FWS OLE
- Developed the contract selection criteria and managed the proposal evaluation in concert with the Acquisition Service Directorate (AQD)
- Developed the inventory, evaluation and comparison methodology in concert with the Booz Allen Hamilton contract team
- Coordinated and participated in the inventory and assessment reviews

² Project management best practices based on PMI's PMBOK Guide – Fourth Edition, ©2008

- Performed the contract administration of the OCIO PMPS contract vehicle and related deliverable evaluations
- Developed the presentations in concert with the Booz Allen Hamilton contract team
- Presented the LE Study findings in concert with the Booz Allen Hamilton contract team
- Performed the project, study and contract administration closeouts

3.3.2 Study Management

Under the program office, the contract team Booz Allen Hamilton managed the LE Study activities, including:

- Framed the LE Study report outline
- Detailed the schedule and study plan
- Developed the inventory, evaluation and comparison methodology in concert with the OCIO Project Manager
- Designed and developed the inventory, assessment and interview tools
- Coordinated, ran and documented the inventory, assessment meetings and interview sessions
- Characterized and abstracted the inventory, assessment and interview data and findings
- Analyzed and abstracted the evaluation and comparison findings
- Coordinated, developed and wrote the LE report
- Developed the presentation and key presentation materials
- In concert with the program office, presented the LE Study findings

Booz Allen Hamilton independently and objectively inventoried, evaluated and compared the LE systems based on best practices and Federal standards to the appropriate system-of-record. Booz Allen Hamilton also coordinated, facilitated and managed meetings and interviews with the LEMIS, LE-IMAGS, IMARS and FBMS management teams.

4 METHODOLOGY

The LE Study assesses the LEMIS and LE-IMAGS systems' business functions based on best practices and standards, including alignment to the FEA perspectives. Each business function inventoried is evaluated from the following FEA perspectives:

- **Performance (Reference) Perspective** – the Performance perspective evaluates the enacted business requirements and standards
- **Process (Reference) Perspective** – the business process perspective evaluates the business management processes and their governance and control requirements
- **Date (Reference) Perspective** – the business data perspective evaluates the business information and controls requirements, including Office of Management and Budget's (OMB) A-130 requirements
- **Service (Reference) Perspective** – the business service perspective evaluates the business information services, access and controls requirements. This includes the information's user access & controls; and interoperability (data exchange) service requirements and standards

4.1 Study Approach

The LE Study's approach consists of three primary phases of activity:

- 1) Inventory,
- 2) Evaluate, and
- 3) Compare

The study evaluates each LEMIS and LE-IMAGS business function for (1) full Performance, (2) partial Performance or (3) non-Performance from the FEA perspectives. It summarizes the "deltas", identifying the key requirements necessary for full Performance. The study also assesses the business function's data exchange (interoperability) Performance to the appropriate system-of-record and compares the system functions to the appropriate system-of-record for functional overlaps. Details for each phase of the LE Study's approach are provided below.

4.1.1 Inventory Methodology (data collection)

The LE Study's approach to data collection aligns to the FEA perspectives (see Figure 2). For each LEMIS and LE-IMAGS business data theme, the inventory, assessment and documentation approach includes:

- Inventory the business data theme (entity), including their data elements (attributes) and metadata
- Inventory each business theme's Performance, process and service requirements
- Assess alignment and adherence to requirements, determining (1) full Performance, (2) partial Performance or (3) non-Performance
- Assess each related system-of-record's business data theme's alignment and adherence to requirements, determining (1) full Performance, (2) partial Performance or (3) non-Performance
- Identify and characterize any business data theme's non-compliance issues (deficiencies) to requirements
- Characterize the deficient requirement's needs to meet full Performance

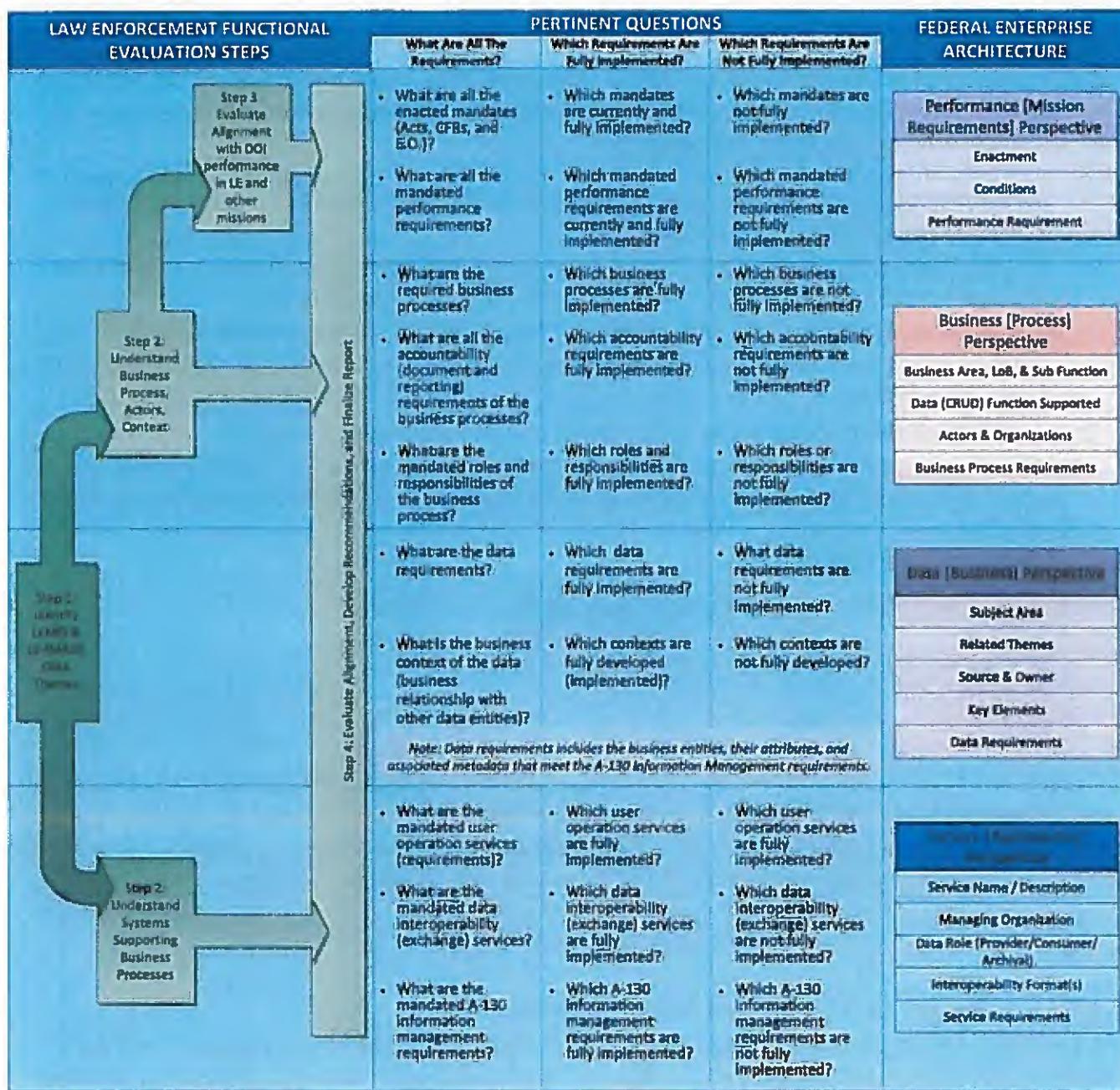


FIGURE 2: STUDY METHODOLOGY'S ALIGNMENT TO FEDERAL ENTERPRISE ARCHITECTURE (FEA)

4.1.2 Study Evaluation Methodology

Building upon data collection inventories, the Evaluation phase focuses on establishing a baseline set of measures (requirements) to answer the following questions: "What are the known requirements?", "Which requirements are currently fully implemented?", and "Which requirements are not currently implemented?". In order to establish this baseline set of measures, the FEA perspectives were once again employed. Each requirement collected during the Inventory phase is assigned a category based on the FEA perspective it represents: Performance, business, service, or data requirement. These requirements are also clearly aligned to their source (e.g., the document, law or location from which they were derived) as well as the relevant LE system they pertain to: LEMIS, LE-IMAGS, or IMARS. Figure 3 provides an example of the resulting evaluation matrix that is produced. For each

requirement (baseline measure) identified, the system under evaluation is given a ranking of Meets, Partially Meets, or Does Not Meet, along with a short rationale as to why the rank was assigned.

- **Meets:** implies that the functionality was demonstrated during a system overview and requires no further configuration or customization.
- **Partially Meets:** with configuration or customization the system could be adapted to perform the functionality defined in the requirement.
- **Does Not Meet:** the system is most likely incapable of performing the functionality defined in requirement or would require significant redesign and development.

Also, the relevant system-of-record responsible for the given business data theme is identified and given a ranking and a rationale on how that system meets/fails to meet the stated requirement. The rankings are color coded such that the reader can quickly identify deviations between the two systems' support for the requirements.

IA Assessment Perspective	Requirement	LE-IMAGS System Assessment	Assessed Capabilities			Assessment Description
			System-of-Record	System-of-Record Assessment		
Data	Endangered Species Data must include standard species classification as defined by the International Code of Zoological Nomenclature	Meets	All species identification information includes the ICZN designated name in the "Species Classification" table.	ECOS	Meets	All species identification information includes the ICZN designated name in the "Species Classification" table.
Data	Endangered Species Data must include current Emergency Species Declaration information.	Partially Meets	Planning/Design: Requirements and technical design are complicated but being implemented. Architectural Support: System architecture does not require significant changes to support. Technical Capability: Requirements to support.	IMARS	Meets	Emergency Species Declaration information is updated immediately upon publication of Emergency Declaration.
Service	Data populating the Endangered Species list must source from the ECOS system	Meets	All information on Endangered Species is pulled from the ECOS system via read-only SQL/JDBC query.	IMARS	Partially Meets	Planning/Design: Requirements are known, but technical changes are still required. Architectural Support: System architecture does not require significant changes to support. Technical Capability: Can be implemented without significant code.
Service	Endangered Species data must be translatable via the "target" field in the GIZMO data format.	Does Not Meet	The system does not support the transfer of data via XML.	IMARS	Does Not Meet	The system does not support the transfer of data via XML.
Business	Endangered Species data must be available during the Create Incident process.	Meets	The system provides a visual and textual method for identifying and recording species information via the Affected Wildlife screen.	IMARS	Meets	The system provides a visual and textual method for identifying and recording species information via the Affected Wildlife screen.
Business	Endangered Species identification must be performed by a licensed estimator.	Does Not Meet	The system does not check that the LE is a certified licensed estimator prior to recording species data.	IMARS	Meets	The system requires the current user to be listed as a licensed estimator role.
Performance	DOI needs to follow up on endangered species trafficking incidents within 4 months.	Meets	The supported workflow ensures all incidents are followed up on or escalated within four months.	IMARS	Meets	The supported workflow ensures all incidents are followed up on or escalated within four months.

FIGURE 3: EXAMPLE EVALUATION MATRIX

4.1.3 Study Comparison Methodology

The LE Study's comparison phase uses the collected inventories and evaluations from the previous phases in order to provide a comparison of the LE and non-LE functionalities demonstrated by LEMIS and LE-IMAGS, compared to the appropriate system-of-record (e.g., IMARS for LE, or FBMS for Non-LE). These comparisons are visualized through Venn diagrams (see Figure 4 for an example) to graphically depict where each analyzed system has an overlap, gap or unique set of functionality with the system-of-record.

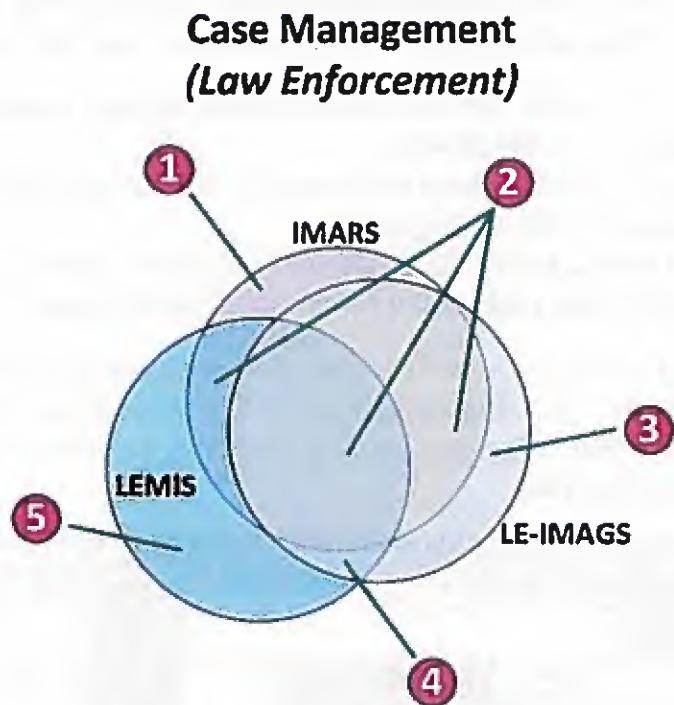


FIGURE 4: EXAMPLE VENN DIAGRAM

The intersections of the Venn diagrams are numbered and a brief explanation is provided to guide the reader through the overall comparison of the particular functional domain. In the example in Figure 4, the LE functional domain of "Case Management" is depicted. The first numbered area indicates the unique functionality that IMARS demonstrates in this area, while the third and fifth numbered areas pertain to the unique functionality of LE-IMAGS and LEMIS, respectively. The second numbered area describes the overlapping functionality between all three systems, while the fourth area describes the overlapping functionality between the LEMIS and LE-IMAGS systems.

4.2 Supporting Information & Appendices

In support of the overall study approach and its: inventory, evaluate, and compare phases; numerous source documents and background information were collected and analyzed. This analysis and the resulting intermediate products produced are provided in the study's appendices and referred to throughout the LE Study to provide additional details. Appendix A presents analyses focused on LEMIS while Appendix B presents LE-IMAGS analyses.

5 LEMIS OVERVIEW

This section contains a high-level overview of FWS OLE's LEMIS system. It provides the necessary background information required for the upcoming LE Study Findings in Section 7.

5.1 System Details

A general description of the LEMIS system is provided below, along with details on its ownership, purpose and identified data themes. Also found in this section is a 1-page fold-out, which provides an at-a-glance view of this information in a summary format (Figure 5).

5.1.1 General Description & Ownership

The LEMIS system is a Web-based application providing a wide range of functionality related to the business processes used in the daily activities and management of FWS LEOs. It is developed as a two-tier web architecture, the first tier being a scripted web interface (dynamic web pages) and the second tier being a relational database. The dynamic web pages allow for data entry, review and management into the backend LEMIS database.

Law Enforcement Information Management System (LEMIS)

System Overview

Name: Law Enforcement Information Management System (LEMIS)

Ownership: DOI Law Enforcement, FWS

Purpose: Collection, Analysis, and Storing of Information

General Description:
The LEMIS System assists FWS/OLE officers in their day to day operations and measures performance based on the OLE strategic plan. The LEMIS system assists in law enforcement investigation based activities through Case Management, Strategic Planning, Undercover Operations, and Intelligence. It also includes modules to track time spent on cases, officer training and administration, and other LE Management functions, making it a comprehensive source of LE Program data for FWS/OLE.

Software:
LEMIS 2000 is a Cold Fusion MX and SQL Server 2000 Application. The application is a server-based web application.

System Purpose

- LEMIS was developed to assist OLE officers with day-to-day operations, in addition to measure performance with respect to the OLE Strategic Plan.
- LEMIS is designed to store and track the FWS law enforcement information pertaining to the key data themes
- The system allows public entities to submit electronic form 3-177 declaration for imports and exports
- LEMIS collects and stores information gathered and generates into report forms for approval

Business Processes

- Case Management
- Investigations Management
- Issue Violation
- Manage Case Related Property
- Strategic Planning
- Financial Management
- On the Job Process
- Training Tracking Process

Data Themes

- LEMIS Case
- Wildlife Imports/Exports
- Criminal Intelligence Information
- Regulation
- Confidential Pct Informants
- Wildlife Species
- Bird Fatality Management
- Forensic Analysis Results
- OLE Training Programs
- Financial Transaction
- Strategic Performance Measure Input
- Officer
- Violation
- Property Item

Related Enactments

- 16 USC Chapter 5(a) - Protection and Conservation of Wildlife (Eagle Protection Act)
- 16 USC Chapter 35 - Endangered Species (Endangered Species Act)
- 16 USC Chapter 53 - Control of Illegally Taken Fish and Wildlife (Lacey Act)
- 50 CFR Wildlife and Fisheries
- 16 USC Chapter 31 - Marine Mammal Protection (Marine Mammal Act)
- FBI's Uniform Crime Reporting (UCR) Handbook, NIBRS Edition (1987)
- FWS Service Manual
- 16 USC Chapter 23 - National Wildlife Preservation System

System Interface Model

LEMIS Interim Conceptual System Architecture

Current LEMIS System Architecture

Screen Shots

LE Property Tracking

LEMIS Main Screen

Import/Export Declarations Menu

FIGURE 5: LEMIS SYSTEM OVERVIEW SUMMARY

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5.1.2 Purpose

LEMIS provides a single point of access that contains numerous, tightly-coupled sub-modules, each providing for the automation of a different part of the FWS LE program. The LEMIS sub-modules and their related areas are listed in Table 7 below.

LEMIS Sub-Module	Description	Related Data Themes
Investigations (Case Management)	Allows LEOs and their managers to create, track, and process LE cases and related data, such as subjects, property, forensics, and other information.	Case, Strategic Planning, Violations, Property Items, Forensics Analysis, Officers, Criminal Intelligence, Cooperating Private Individuals, Performance Measure Input, Bird Fatality
SuperCases	Provides the option for LEOs to link multiple cases under one overarching or "umbrella" case	Case Management, Violations, Property Items, Forensic Analysis
Property Tracking	Allows FWS LEOs and Supervisors to track and manage all property acquired as a result of enforcement actions and investigative activity. Additionally, allows FWS Administrative staff to track LEE property.	Case Management, Wildlife Species, LE and Case Property, Officer, Financial Transactions
Intelligence	Assists LEOs in creating and maintaining intelligence information concerning individuals and/or businesses involved with or related to criminal activity.	Case Management, Wildlife Species, Officer, Cooperating Private Individual
Undercover Bookkeeping	Assists FWS Supervisors in the financial management of funds associated with a Class I or II undercover business. UCBBooks also allows a LEO to maintain a ledger for businesses, track business inventory, and submit monthly financial reports to OLE supervisors.	Case Management, Officer, Financial Transactions, Property Items (Inventory), Criminal Intelligence, Cooperating Private Individuals
Wildlife Import/Export Declaration	Assists FWS Import/Export Inspectors in reviewing fish, wildlife, and plant cargos being imported into or exported from the United States for compliance with trade law.	Wildlife Import/Export, Investigations (Case Management), Case Property
Civil Asset Forfeiture Reform Act (CAFRA) Processing	Assists LEOs in complying with CAFRA for any seized imported/exported property based on the value of the property seized.	Case Management, Wildlife Import/Export, Regulations (Policy), Property Items (Seized / Abandoned Property)
Cooperating Private Individuals (CPI) Management	Allows LEOs to create and track CPIs that provide critical information to the OLE.	Case Management, Intelligence, Officers
Bird Fatality Reporting & Investigation	Allows public utility companies to submit bird fatality reports that are received by FWS Special Agents who then process the information and take any necessary actions.	Case, Forensic Analysis, Officer, Investigation, Property Items (Case-Related Property), Wildlife Species
National Eagle Repository Management	Allows for the submittal of special requests of bird parts for religious purposes by Native Americans.	Wildlife Species, Property Items (Assets)
Law Enforcement Training Tracking System (LETTS)	Allows Field Training Instructors to track general officer training information and requirements. The module also tracks OLE in-service attendance and training, including smaller training components such as firearms, physical training, etc.	OLE Training Programs, Officers, Performance Measure Inputs
Field Training Evaluation Program (FTEP)	Assists LEOs to track and manage necessary training courses. Additionally, allows FWS Supervisors to manage staffs training requirements and provide feedback.	Officers, Staff Management, Performance Measure Inputs
Funds Management	Allows FWS Supervisors to manage their department's funds.	Financial Transactions, Staff Management
Access Control Management	Allows FWS Managers and Supervisors to control and restrict LEMIS' user's access to the system.	Staff Management, Officer

Officer Administration (Human Resource Administration)	Assist FWS Administrative staff in managing FWS' employees, property, payroll, and fund target reports and/or projections.	Staff Management, Training Programs, Regulations (FWS)
Expense Reporting	Allows FWS Staff to enter and track LE related expenses.	Financial Transactions, Staff Management
Travel Reporting	Allows FWS Staff to enter and track LE related travel.	Financial Transactions, Staff Management

TABLE 7: LEMIS SUB-MODULES

5.2 LEMIS Inventories

This section briefly summarizes the data themes associated with the LEMIS system. For a detailed explanation of each data theme, including the detailed data context diagrams, business processes, related services, and related Performance requirements, please refer to Appendix A.

5.2.1 LEMIS Case

The LEMIS Case data theme consists of the data collected and managed during an investigation, including any associated LE actions. Investigations stem from incidents and have at least one case associated with them. It is important to note that LEMIS does not distinguish between a case and an incident. A LEMIS case is a master data element within LEMIS and is comprised of one to many case reports which in turn have one to many violations associated with them. The concept of a "case" and an "incident" are interchangeable to LEMIS, and the default term used is "case".

5.2.2 Officer

A FWS LEMIS Officer is any Service special agent or wildlife inspector who has the authority to enforce Service statutes, regulations, and policies via delegated authority. Officers must comply with all regulations and rules applicable to Federal employees, as well as follow all policies and guidelines issued by the Service. LEMIS Officers perform duties to prevent threats to wildlife resources, such as illegal trade, unlawful commercialization of wildlife, habitat destruction, or environmental contamination. The Officer data theme consists of all relevant officer metadata (e.g., duty station, equipment, certifications) as well as the associated cases and workflows they are a part of.

5.2.3 LEMIS Property Item

The LEMIS Property Item data theme consists of the property collected, managed or maintained during LE activities. Property can be broken down into two categories within LEMIS: (1) Case-related property associated with the investigation of an incident (evidence), and (2) LE Assets including things such as: firearms, stations, vehicles, miscellaneous equipment, etc.

5.2.4 Criminal Intelligence Information

According to 28 CFR Part 23, Criminal Intelligence Information (Intel) represents data which has been evaluated to determine its relevance to the identification of an individual who or organization which is reasonably suspected of involvement in criminal activity. While Intel records help OLE share information regarding an alleged criminal activity or violation, the sharing of information must conform to the privacy and constitutional rights of individuals. The type of Intel collected may contain information about the alleged activity, background information on individuals and/or organizations, and reference information in support of OLE activities. This data theme consists of the Intelligence data and functionality represented in the LEMIS Intelligence sub-module.

5.2.5 Regulations

LEMIS Regulations incorporate all policies and procedures applicable to LEOs, Special Agents, and Wildlife Inspectors, determining the conduct, general rules, and responsibilities of those individuals. These regulations also include the policies that determine how information systems are developed and operated (intelligence systems present additional requirements, as illustrated by the 28 CFR part 23) and policies and procedures applicable to organizations that collect, process, and manage criminal information (see Uniform Crime Reporting and the National Incident-Based Reporting System requirements for additional detail).

5.2.6 Violation

FWS violations include everything from simple baiting and invalid hunting licenses to large scale smuggling activities. Based on the type of violation, the complexity and duration of an investigation can vary significantly, with issues taking anywhere from a day to several months or years to resolve. Violations and the accompanying information that officers input into the LEMIS system tie directly to the OLE Strategic Plan. This information also shares a connection with the National Incident-Based Reporting System (NIBRS) reporting system, as violations are categorized as Group A or Group B offenses. The Violation data theme is closely related the Regulation data theme and is found primarily within LEMIS' Investigation sub-module.

5.2.7 Wildlife Import/Export

The Wildlife Import/Export data theme consists of the data used to track the import, export, and international trade of plant, marine, and wildlife species, as well as any goods produced from species. FWS' goal is to ensure that all such trade is conducted legally and in accordance with existing laws and regulations including the Endangered Species Act, International Trade Agreements, and other regulations. As a part of this data theme, LEMIS also tracks information on specific wildlife species that are subject to trade regulations (those that require permits prior to import/export).

5.2.8 LEMIS Wildlife Species

The LEMIS Wildlife Species data theme entails all codes and classifications associated with different types of species including plants and animals. A LEO must use the LEMIS system to indicate which general category of wildlife species are involved in an investigation: Native or Foreign. The LEMIS system then tracks each species type through the system with a unique species code that is generated from an external system called the Special Permits Issuance and Tracking System (SPITS).

5.2.9 Cooperating Private Individuals (CPI)

The CPI data theme consists of data collected in relation to individuals identified as persons who are aiding the FWS in the investigation of a specific case. Included in the data theme are all pieces of data relevant to a confidential source, including identifying information, results of background checks, uploaded agreements, etc. Given the extremely sensitive nature of this information, data related to CPIs is strictly confidential and its access is controlled to ensure the safety of both officers and informants. The authorization, payment, and release of funds to individuals with information supporting or leading to a case is required to follow strict regulations and policies, as explained in the Performance requirements section of Appendix A.

5.2.10 Forensic Analysis

The Forensic Analysis data theme covers the results from a lab analysis request that is generated from data pulled from the officer's LEMIS case. This data is used to populate an Evidence Submittal Form and Examination Request submitted to the lab. A LEO may make a request for forensic analysis of any property items that has been retained by the OLE.

5.2.11 Bird Fatality Incident

The Bird Fatality Incident data theme consists of external Utility companies filing a report through the Bird Fatality extranet subsystem when a bird has been injured or killed via a utility line. This report captures precisely what happened to the bird, where it happened, and what actions the utility company plans on taking to prevent this type of incident from occurring again. A special agent is notified once this report has been submitted as a LEMIS Bird Fatality Incident. The special agent will then review the report as well as any uploaded photographs. The special agent can then determine if any actions need to be implemented in relation to the incident, for example beginning a new investigation.

5.2.12 OLE Training Programs

The FWS OLE possesses standards, qualification and procedures for training its LE personnel. The OLE Training Program data theme consists of the training processes and associated requirements followed by OLE to meet its LE training responsibilities and maintain an effective program. The training programs' policies and procedures are derived from the FWS Service Manual (Part 232 FW 2) and the DOI Departmental Manual (DM Part 446) to promote effective LE training programs. The LEMIS training modules (e.g., LETTS, WI-FTEP and SA-FTEP) provide functionality to users by presenting customized user interfaces and subsystems that allows Field Training instructors to create new courses, manage these courses, score officers' progress and ensure that new officers are meeting the qualifications for field duty.

5.2.13 Financial Transaction

The Financial Transaction data theme consists of the management of money that is collected or managed during LE and non-LE activities. The non-LE Financial Transactions in LEMIS consists of budget analysis and reconciliation of planned vs. actual expenditures through a distributed workflow process. Additionally, LEMIS has the ability to manage both LE property (evidence) and non-LE property (program assets) and its associated values. Lastly, LEMIS' provides special agents the ability to conduct daily accounting needs for managing an undercover business. The LEMIS UCBooks sub-module allows the officer to maintain a ledger for the undercover business, tracking business inventory, and submitting monthly financial reports to OLE supervisors.

5.2.14 Performance Measure Input

The Performance Measure data theme consists of elements in the OLE Strategic Plan that are used to measure the OLE's effectiveness with respect to the following OLE goals and cross-cutting objectives: Wildlife Protection, Global Wildlife Trafficking, Facilitate Legal Trade, Management Accountability, Enforcement Partnerships and Compliance. As a part of this data theme, the OLE case officer opens a new investigation in LEMIS and fills in the required data fields, which establish a baseline defining the case with respect to the OLE Strategic Plan Performance measurements.

6 LE-IMAGS OVERVIEW

This section contains a high-level overview of the FWS National Wildlife Refuge Services' (NWRS) LE-IMAGS system. It provides the necessary background information required for the upcoming LE Study Findings in Section 7.

6.1 System Details

A general description of the LE-IMAGS system is provided below, along with details on its ownership, purpose and identified data themes. Also found in this section is a 1-page fold-out which provides an at-a-glance view of this information in a summary format (Figure 6).

6.1.1 General Description & Ownership

The LE-IMAGS System is a Web-based application that provides definitive and secure information for all activities related to FWS NWRS LE activities. The LE-IMAGS system has the ability to input, store, maintain, process, query and generate reports for data pertaining to refuge LE information. LE-IMAGS contains a relational database for data storage as well as a standard web based interface for viewing and updating data.

6.1.2 Purpose

LE-IMAGS provides a single point of access for refuge LE management and integrates closely with two external systems / datasets: the Emergency Mapper system and the Corporate Master Table (CMT) dataset. Each external system provides particular functionality or data for different parts of the LE-IMAGS system. The specific functionality provided is listed below in Table 8.

External System / Dataset	Provided Functionality
Emergency Mapper	The LE-IMAGS Emergency Mapper integration allows an Officer to view and generate Latitude / Longitude coordinates for the location of an incident and add/remove geospatial layers (i.e., easement boundaries, water bodies, refuge boundaries, etc.). The Officer can also link a custom generated map directly within the LE-IMAGS application to an incident.
Corporate Master Table (CMT) Database	The CMT database stores FWS location and facility information (e.g., national refuges, easements, stations) that is made available via numerous pick-lists during the incident creation processes within the LE-IMAGS system.

TABLE 8: LE-IMAGS EXTERNAL SYSTEMS

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Law Enforcement - Incident Management and Gathering System (LE-IMAGS)

System Overview

Name: Law Enforcement - Incident Management Gathering System (LE-IMAGS)

Ownership: DOI Law Enforcement, FWS NRARS

Purpose: Collection, Analysis, and Storing of Information

General Description:
The LE-IMAGS System supports FWS/NRARS to track and assist with the workloads of refuge law enforcement personnel as well as provide employee administrative information for human resource activities. LE-IMAGS provides incident data collection, case management and reporting, easement violation tracking, and leverages geospatial functionalities to assist officers in location identification and mapping.

Software:
LE-IMAGS is a web-based application with a J2EE architecture

System Purpose:

- The purpose of LE-IMAGS is to provide a standard web based application that provides definitive, current, and secure information about all activities associated with the services of Refuge Law Enforcement work
- LE-IMAGS is designed to support FWS NRARS in their law enforcement and inspection activities through, creating incidents, managing property, tracking incident locations, store officer information, etc.
- LE-IMAGS collects and stores information gathered in addition to generate reports
- A user can use an ArcIMS generated map (linked from within the LE-IMAGS application) to generate Latitude / Longitude coordinates for the location of an incident

System Purposes

- Incident Process
- Issue Violation
- Manage Case Related Property
- Geospatial Functionality
- Training Tracking Process

Business Processes

- On the Job Process
- Law Enforcement Asset Management
- Issue Violation
- Staff Management
- House Keeping Administration

Data Themes

- LE-IMAGS Incident
- Offense / Regulation
- Person
- Vehicle
- Firearm / Drug Item
- Warnings
- Arrests
- Violations

- Easement
- Law Enforcement
- Property
- Stations
- Officers (Field Training and Evaluation Program (FTEP))
- Non-Commissioned Supervisors of Record
- Policies and Standard Operating Procedures
- Evidence
- Officer

Related Enactments

- FWS Service Manual
- 16 USC Chapter 1 (a) - Historic Sites, Buildings, Objects, and Antiquities
- 16 USC Chapter 5(a) - Protection and Conservation of Wildlife (Eagle Protection Act) (The National Wildlife Refuge System Administration Act)
- 16 USC Chapter 5(b) - Wildlife Restoration
- 16 USC Chapter 7 - Game and Wild Birds Preservation (Migratory Bird Treaty Act)
- 16 USC Chapter 9 - Fish and Wildlife Service (The Airborne Hunting)
- 16 USC Chapter 35 - Endangered Species (Endangered Species Act)
- 16 USC Chapter 53 - Control of Illegally Taken Fish and Wildlife (Lacey Act)
- 16 USC Chapter 79 - National Park Service Management
- 18 USC Chapter 3 - Animals, Birds, Fish and Plants
- 18 USC Chapter 44 - National Parks, Monuments, and Seashores
- 18 USC Chapter 55 - Malicious Mischief
- 18 USC Chapter 55 - Embezzlement and Theft
- 18 USC Chapter 91 - Public Lands
- 28 CFR Criminal Intelligence System Operating Policy
- 44 U.S.C. Chapter 35 - Security of Federal Automated Information Systems
- 50 CFR Wildlife and Fisheries
- FBI's Uniform Crime Reporting (UCR) Handbook, N BRS edition, (1992)

Screen Shots

LE-IMAGS Create Incident

Officer Property Data

Property Search

Emergency Mapper Layers

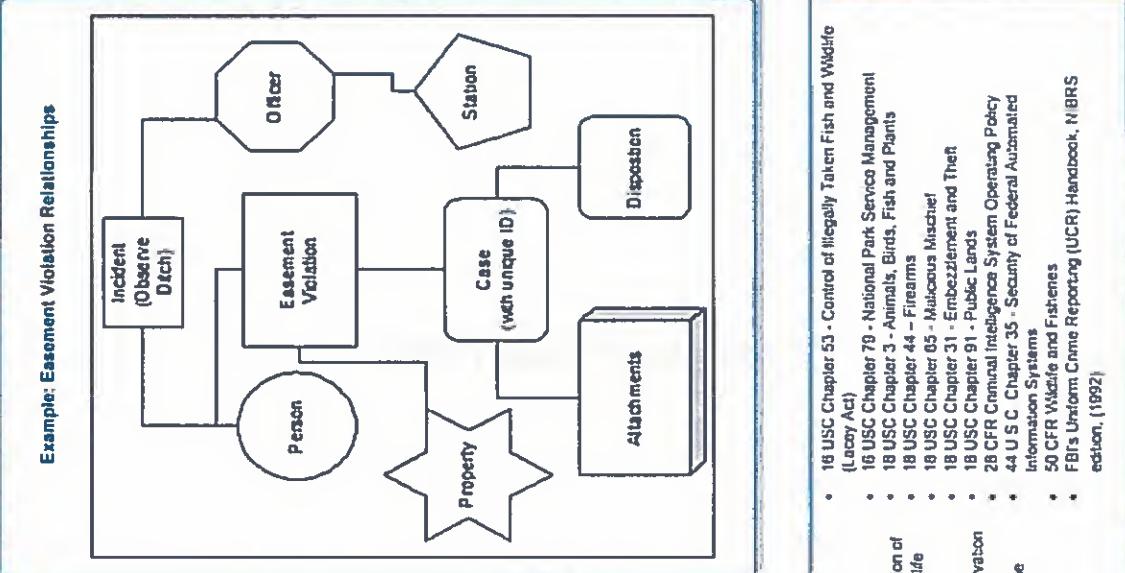


FIGURE 6: LE-IMAGS SYSTEM OVERVIEW SUMMARY

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6.2 LE-IMAGS Inventories

This section provides a brief overview of the LE-IMAGS data themes. For a detailed review of the entire LE-IMAGS inventories, including each theme's data context diagram, related business processes, related services and related requirements, please see Appendix B.

6.2.1 LE-IMAGS Incident

The LE-IMAGS Incident data theme is a master data record within the system and consists of the data collected and managed during the execution of LE activities. Investigations stem from an event that occurs, prompting an incident to be created within the LE-IMAGS system. A Refuge Officer enters incident data into LE-IMAGS to document activities performed during an investigation, including the incident's location (using GIS functionality), related Officer, Station, Offense / Regulation classification and additional details. From this incident, an Officer can then either create additional related data themes or search for existing data theme to relate to the incident (e.g. Evidence, Officers, Violations, Warning).

6.2.2 Officer

A FWS National Wildlife Refuge System Officer (Refuge Officer or Officer) is any Service personnel who has the authority to enforce Service statutes, regulations, and policies via delegated authority. Officers must comply with all regulations and rules applicable to Federal employees, as well as abide by all policies and guidelines issued by the Service. Officers perform duties to uphold the mission of the FWS NWRS by helping "administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans"³. LE-IMAGS associates Officers with their primary duty station, supervisory chain, active and past incidents, LE equipment, etc.

6.2.3 Easement

The LE-IMAGS Easement data theme consists of protected parcels of land in which the right to use the property is controlled for a specific purpose. The easement is itself a real property interest, but legal title to the underlying land is retained by the original owner for all other purposes. In the case of FWS, this is typically the U.S. Government. LE-IMGAS has the ability to track easements and their status, description, activities (violations), ground check date and flight data in addition to any comments captured by Officers. When an Officer is tracking an easement, they have the ability to do so in one of two ways: (1) a ground check to survey the easement and make sure no policies or regulations have been breached, and (2) by flying over the easement and taking aerial pictures that are then linked to the incident in the LE-IMAGS system. Once the Officer has had the opportunity to survey an easement, they update the system with the following information: suspect, land owner, operator and threat levels associated to the easement, such as the past history with a particular land owner.

³ <http://www.fws.gov/refuges/about/mission.html>

6.2.4 Offense / Regulations

The Offense / Regulations data theme helps LE-IMAGS Officers classify the type of offenses committed. Types of offenses that LE-IMAGS tracks include Criminal CFR, Non-Criminal CFR, Civil CFR, Outstanding Warrants, and Non-Criminal incidents. LE-IMAGS Incidents contain an offense classification as well as the regulation type associated with the specific offense. Non-Criminal incidents are not necessarily related to an enforced law, but LE-IMAGS tracks and reports on such incidents (e.g., a drowning on a National Refuge).

6.2.5 Violation

The Violation data theme represents the many misdemeanor violations of Federal wildlife laws and regulations that NWRS Officers enforce. Issuing a Violation Notice is not the same as an arrest, and therefore the LE-IMAGS system distinguishes between the two data themes. Violations are provided as a selectable pick-list in the LE-IMAGS system based on the Regulation that is selected during incident creation.

6.2.6 Warning

The Warning data theme includes verbal or written tickets issued to individuals who fail to comply with NWRS rules and regulations. A warning contains incident data (e.g., suspect, location, violation) and can be linked to an incident within LE-IMAGS. For example, an Officer investigates an incident where a person is on the refuge after hours. The Officer documents the issuance of a verbal or written warning given to the person and an incident is created in LE-IMAGS. The Officer can also link an existing warning to this incident, for example a previous warning for an illegal alligator trap placed in the vicinity of where this recent warning was issued.

6.2.7 Arrest

An arrest occurs when an Officer takes a person into custody in order to have the individual answer to a criminal charge. The Officer must establish probable cause that the person is committing or has committed a crime in order to make a lawful arrest. A Refuge Officer may search an arrested individual for potential evidence supporting an incident, but the search must be limited in scope and be made at the same time and place as the arrest. The LE-IMAGS system provides Officers with the ability to document arrests associated with incidents, including details such as the person's identity, the committed violation, evidence found during a search, location of the arrest, etc.

6.2.8 Evidence

The LE-IMAGS Evidence data theme consists of real property that has been linked to an incident and has either been found, turned in, or seized by a LEO. A piece of evidence contains specific information for each unique item including: evidence ID tag number, evidence seizure tag number, location of evidence, and a description. When FWS personnel retain evidence related to an incident they must comply with strict regulations and policies on how to store, maintain or dispose of the inventory item. Some examples of evidence include: drugs, drug items, vehicles, weapons, etc.

6.2.9 Law Enforcement Property

The LE-IMAGS LE Property data theme consists of all property associated to individual FWS personnel to conduct their daily on the job processes. For example, an officer's firearm would be a LE property item that is tracked and managed in the LE-IMAGS system. LE property is separate from property linked to case (evidence) by the fact that it is not necessarily linked to an incident.

6.2.10 Firearm

The LE-IMAGS Firearm data theme is defined as an FWS NWRS Officer's firearms and other LE weapons (e.g., electrically charged devices). An Officer's firearm is a specific type of LE property that is tracked and managed in the LE-IMAGS system. The system has the ability to manage every officer's firearm, including the make, model, serial number, etc., and can distinguish the particular firearm that is associated to each officer. Additionally, the LE-IMAGS system manages the cost and value of every Firearm and related weapons, and identifies when firearms are transferred among FWS personnel. Finally, LE-IMAGS can track firearms associated with incidents as evidence as well (e.g., a gun found on a suspect).

6.2.11 Drug/Drug Item

The LE-IMAGS Drug/Drug Item data theme consists of drug substances, drug labs/sites, and drug paraphernalia/equipment that have been linked to an incident on a National Wildlife Refuge. The Drug/Drug Item theme can be classified as evidence related to an incident. Typically an incident linked to drugs or a drug items can be categorized in one of the three ways: (1) the delivery of a controlled substance on a National Wildlife Refuge, (2) the possession of a controlled substance on a National Wildlife Refuge, or (3) being under the influence of a controlled substance on a National Wildlife Refuge. LE-IMAGS is capable of producing an Annual Drug Report, which contains information regarding general seizures, marijuana plant seizures, other drug seizures, number of arrests and citations, search warrants served, and personal property associated with all drug cases on a given wildlife refuge during a given year.

6.2.12 Person

The LE-IMAGS Person data theme is comprised of all the individuals associated with an incident. A person can include a suspect, witness, victim, landowner, etc. LE-IMAGS tracks specific information for each person related to an incident including a name, address, date of birth, physical characteristics, and other personal information.

6.2.13 Stations

The LE-IMAGS Station data theme consists of all the FWS NWRS' physical Stations. FWS personnel are assigned to a designated station based on their particular region. LE-IMAGS has the ability to track a station's location, address, station name, org code and all the staff assigned to a particular station (relying on authoritative data received from the CMT database). The LE-IMAGS Emergency Mapper functionality also has the ability to locate and visualize stations geospatially on custom generated maps.

6.2.14 Vehicle

The LE-IMAGS Vehicle data theme is comprised of officer's vehicles (LE assets) in addition to vehicles associated with incidents (evidence). A vehicle can be classified as a moving object including but not limited to cars, boats, motorcycles, ATVs, airplanes, etc. The LE-IMAGS system tracks a vehicles description including the tag number, model, year, make and color and provides Officers with the ability to search for existing vehicles within the system.

6.2.15 Field Training and Evaluation Program (FTEP)

The FTEP data theme focuses on the training and certification of Refuge Officers. The training programs' policies and procedures are derived from the FWS Service Manual (Part 232 FW 2) and the DOI Departmental Manual (DM Part 446) to promote effective LE training programs. Refuge Officers must complete the Basic LE Course for Land Management Agencies and the Refuge Officer Basic School to ensure proper preparation for performing field duties. The FTEP functionality within LE-IMAGS allows Field Training Instructors to perform functions related to managing the FTEP processes, including the ability to create new courses, score trainees' progress, track attendance, certify completion, etc.

6.2.16 Policies and Standard Operating Procedures

The Policies and Standard Operating Procedures data theme includes the policies, procedures, guidelines, and regulations that FWS Officers must comply with and abide by. These policies and procedures are primarily outlined in the FWS Service Manual, Agency Handbooks and policies, and other regulations that outline the conduct of LE personnel and the management of refuges. The Policies and Standard Operating Procedures data theme plays a fundamental role in how LE-IMAGS conducts its operations, for example defining the workflow for incident approvals.

6.2.17 Non Commissioned Supervisors of Record

The Non Commissioned Supervisors of Record data theme includes Supervisors of LE Officers that manage and oversee LE-IMAGS Officers. Supervisors are not typically present at Refuges and are not certified LE individuals and are therefore considered separately from the LE-IMAGS' Officers data theme. Supervisors support the administration of Refuge Officers and it is their duty to uphold the mission and guiding principles of the FWS NWRS.

7 FINDINGS

The study team spent several weeks analyzing business processes, assessing data themes and collecting requirements for the LEMIS and LE-IMAGS LE systems. Over 20 business processes, 31 data themes and 350 requirements were collected and assessed during this period. Once identified, categorized and validated, each LEMIS and LE-IMAGS requirement was evaluated to determine if the LE system fulfilled the requirements and to what extent. Next, each requirement was evaluated against the appropriate system-of-record (IMARS for LE requirements, FBMS for non-LE financial, budget, and non-evidentiary property management). The results of these evaluations were compiled into an Analysis Matrix (provided as a separate spreadsheet), which highlights both the alignments and gaps between the LE system requirements and system-of-record. Section 7.1, below, provides a summary of the study team's evaluation findings.

Leveraging these evaluation findings, the study team then prepared a comparison of the primary functionality provided by the systems. These comparisons highlight the level of overlaps present across the different systems. The findings from these functional comparisons are provided in Section 7.2.

7.1 Summary of Analysis Matrices

The study team prepared sixteen analysis matrices which grouped the documented requirements into eight functional domains (see Table 9: Functional Domains (in Section 7.2)). For each functional domain, two matrices were developed. The first matrix details the requirement's alignment between LEMIS and the appropriate system-of-record, while the second matrix provides a similar analysis for LE-IMAGS and the appropriate system-of-record.

In general, the team found that the existing systems and the system-of-records had similar functionality. In most cases, the current LE system was able to show that it met all identified requirements and aligned with the business processes, services, and Performance requirements. At the same time, it was repeatedly noted that the system-of-record, especially IMARS, would be capable of meeting the same requirements provided that it was configured⁴ properly. Example configuration activities would include adding new custom data fields, document types, and processing workflows.

With respect to A-130 compliance, the team was asked to investigate the security and records management compliance for the LEMIS and LE-IMAGS systems. In particular, the team was to ensure that all security risk management, security planning, and Authorities to Operate (ATOs) and Plans of Action and Milestones (POA&Ms) were current, and that all data themes had an appropriate National Archives and Records Administration (NARA) Record Schedule with proper system and process controls to ensure adherence. In both cases, the FWS stated that their systems were in full compliance. The associated records schedule for all data themes reported by FWS is the U.S. Fish and Wildlife Service Comprehensive Record Disposition Schedule (Item ENFR-110)(N1-022-05-01/63).

⁴ According to the Software Engineering Institute (SEI), customization is defined as the "modification of packaged software to meet individual requirements. If the software already includes all the necessary capabilities, it is simply a matter of selecting the correct configuration (Source: <http://www.sei.cmu.edu/>)

In cases where a more significant deviation was noted, the following sections describe the specific findings. Also included is a summary of topics that were identified by study participants as areas of concern, even if the evaluation did not find a significant functional gap.

7.1.1 LEMIS Specific Findings:

Cross-Agency Criminal Information Sharing: A key issue surrounding LE Records Management Systems (RMS) is the need to make criminal and intelligence information from one organization available to other LE organizations elsewhere in the federal, state, and local governments. This issue has grown significantly in the past decade with the increased threat posed by terrorism, well-armed drug cartels, and other organized criminal organizations. To help exchange information, the Federal government has enacted laws, including the Intelligence Reform and Terrorism Prevention Act, and established new governance organizations such as the Information Sharing Council that mandate LE organizations across the federal governments share criminal information. Currently, none of the systems reviewed (LEMIS, LE-IMAGS, nor IMARS) support such information sharing, either within or external to DOI. Similarly, neither system supports the generation of NIBRS data exchange. All three systems would require customization to meet these goals. However, in the case of IMARS, the consolidated collection and records management better supports information sharing across DOI and would provide a single point for exchange with external LE organizations.

SuperCases: LEMIS's Case Management functionality distinguishes between two types of cases: a single case and a SuperCase. A SuperCase is a case that is established in alignment with a particular topic, for example the illegal trafficking of a particular type of goods. Once established, FWS Officers can link existing or new case files into the SuperCase. Doing so allows the coordination of information and investigation activities across the linked cases via LEMIS' SuperCase module. This functionality has been identified by FWS as a requirement to support their strategic planning and Performance goals and the ability to create and track SuperCases is highlighted by FWS as a strength of the LEMIS system over IMARS. System walkthroughs with the IMARS team has demonstrated the ability to create a case and add both existing or new cases and information (e.g., forensics results, suspects) to the newly created case. As such, the study's findings indicate that with the proper configuration, IMARS would be capable of meeting the FWS requirements for SuperCase management.

Case Creation and Linkage: LEMIS contains multiple methods in which a case is created beyond the normal case creation process in the LEMIS Investigation module. Examples include the automated generation of cases when:

- A Wildlife shipment is seized during an Import/Export inspection,
- A Bird Fatality Report is submitted by an industry partner, or
- An Officer enters a new Violation Notice outside of the context of an existing case

By allowing for the automated generation of cases, as part of FWS' operational procedures, the LEMIS system has simplified the ability of the LE Officers to create and manage case information. A noted concern by FWS is that this automation may be lost with IMARS.

In demonstration of the IMARS system, the study team found that the system is capable of supporting the implementation of custom interfaces for external systems/data, and that these interfaces can be tied to customized workflows. The workflows have the ability to automatically generate a new case and include relevant information from data received. No significant differentiation in the functional

requirements between the two systems were noted, however appropriate configuration of IMARS and LEMIS would be necessary to facilitate these interfaces and workflows.

Undercover Bookkeeping (UCBooks): In investigating criminal trafficking of wildlife, marine, and plant species, FWS investigations require the tracking of financial ledgers for "front" businesses run undercover by LEOs. The LEMIS system supports the keeping of front-business ledgers and books through the UCBooks module. This module allows agents to track funds and property at a detailed level, while ensuring significant security to ensure their activities do not become known outside the investigation. Neither FBMS nor IMARS provide a similar bookkeeping function. IMARS can be extended to allow for off-the-shelf bookkeeping files to be uploaded to a case (e.g. QuickBooks files), but the system does not currently allow the automated integration of the data into case data. FBMS can provide for some bookkeeping functionality, however, it lacks the granularity of detail to link the created books to specific case files. It also does not have the level of security required to support an undercover operation.

Public Data Submission: The LEMIS system maintains a publically available web system for reporting bird fatality information via the Internet. This function creates cases in the LEMIS system for follow-up by Wildlife Investigators. The IMARS system, in comparison, does not have a public interface and would require re-evaluation technically and in terms of security to provide a public access interface to support similar functionality.

Timekeeping: The LEMIS system is still used by special agents to report their time. This is viewed by FWS as necessary because the current QuickTime system does not support the generation of bi-weekly LE Availability Pay (LEAP) or annual LEAP certification reports. The study team did not investigate the capabilities of the QuickTime system, so the ability of QuickTime to support these reports is currently unknown.

7.1.2 LE-IMAGS Specifics Findings:

Cross-Agency Criminal Information Sharing: As discussed in the LEMIS findings above, none of the systems, including LE-IMAGS, currently allows for criminal information sharing across DOI and externally, nor do they support the creation of NIBRS reports. However, the IMARS system, by consolidating the cases and related information of multiple LE organizations within DOI is in the best position to achieve this requirement, both internally and externally.

Budgeting & Finance: It is important to note that LE-IMAGS does not contain any significant budget functionality. The only closely related function is in the ability for LEOs to identify the estimated cost of a case/incident to the government, which is used as a Performance metric for LE activities and in an annual report to Congress on the expenditure of Federal and State grant funds expended to conserve endangered species. This is not a deficiency of LE-IMAGS, but simply a clarification of difference between LEMIS and LE-IMAGS.

Geospatial Functionality: One of the areas noted in the study of Case / Incident Management functionality in LE-IMAGS is its integrated use of the Emergency Mapper GIS application. FWS Officers use the GIS application in the creation and review of incidents within LE-IMAGS, often times selecting the boundaries, locations, points, etc. for a particular easement or area of ground. In review of IMARS functionality, the ability to link GIS data to an incident was demonstrated, but did not appear as fully

integrated into the user interfaces or workflows as within LE-IMAGS. Customization and integration with the Emergency Mapper GIS data would be required for IMARS to achieve this functionality.

7.1.3 IMARS Specific Findings:

Configuration of IMARS: The IMARS system provides a robust case management tool out-of-the-box. That said, there are numerous FWS configurations that are still required for IMARS to support the LE case management functionality available in LEMIS and LE-IMAGS. This configuration includes the addition of system specific data fields, forms, and interfaces. The possibility that IMARS will need to create data connections with other systems would require customization, including those parts of the LEMIS and LE-IMAGS system that are not related to LE management. In these cases, development may be necessary both in LEMIS/LE-IMAGS to enable services and data feeds for IMARS to consume, as well as development in IMARS to make use of those services and data feeds. However, the flexibility of the underlying IMARS technologies should allow support for such interfaces in a relatively short timeframe.

Solution Certification: One concern raised by FWS regarding IMARS is that it has not been certified under Title 28 CFR Part 23 for use in the collection and management of Criminal Intelligence Information. In review of the regulation and in interviews with the LEMIS system, certification against this CFR does not appear to be formally managed, but instead consists of an internal review of compliance with the CFR's requirements. In discussions with the IMARS team, the team indicated that since this is not a formal certification, they have not spent time specifically validating compliance. In reviewing the regulation, the study team did not find any requirement that IMARS could not achieve with appropriate configuration.

7.1.4 FBMS Specific Findings:

Granularity of Financial Data: The Asset Management/Property Management functionality is covered in the Property (Asset) evaluation. This section is referring more to the Budget functionality in which we are tracking expenditures for case investigation at the case level. This includes requirements such as "The FWS shall submit to Congress (by Jan 15th, annually) preceding fiscal year data pertaining to: a species-by-species accounting of Federal and State (grants) funds expended to conserve endangered species", "A LEMIS case shall have the ability to perform a special funds tracking function", and requirements about the payment of funds in relation to case expenses. In these cases, one of the things I believe I heard is the reason they keep their own budgets is that FBMS doesn't track financial transactions and budgetary data down to the individual case level. This also applies to transactions made in UCBooks...even if FBMS were to be extended to have bookkeeping ledger type information, they would have to extend their financial master data records down to the individual case level to properly track the transactions attached to a specific case.

7.2 Comparison of Functionality

In reviewing the evaluation scores (see Section 7.1) for the data themes, business processes, services, and Performance requirements enabled by the LEMIS and LE-IMAGS systems, the study team organized the results into nine functional domains. The purpose of establishing these domains was to allow for comparisons of the functionality across all evaluated systems. The nine functional domains are detailed in Table 9.

Functional Domain	Description	Related LEMIS Data Themes	Related LE-IMAGS Data Themes
Case Management (LE)	Functionality required for creating, managing, reporting on, and tracking information related to cases and / or incidents.	<ul style="list-style-type: none"> ▪ Case ▪ Regulation ▪ Criminal Intelligence ▪ Offenses ▪ Cooperating Private Individual ▪ Violation ▪ Bird Fatality ▪ Forensic Analysis ▪ Wildlife Import/Export ▪ Person ▪ Vehicle ▪ Firearm ▪ Drug/Drug Item ▪ Warnings ▪ Wildlife Species ▪ Violation Notices ▪ Warranted Arrests ▪ Easements ▪ Mapping 	<ul style="list-style-type: none"> ▪ Incident/Case ▪ Regulation ▪ Offenses ▪ Person ▪ Vehicle ▪ Firearm ▪ Drug/Drug Item ▪ Warnings ▪ Violation Notices ▪ Warranted Arrests ▪ Easements ▪ Mapping
Property (Evidence) Management (LE)	Functionality required for tracking property that is considered evidence on a case.	<ul style="list-style-type: none"> ▪ Property Item 	<ul style="list-style-type: none"> ▪ Evidence
Property (Asset) Management (Non-LE)	Functionality required for tracking property, such as equipment, which is not evidence in a case.	<ul style="list-style-type: none"> ▪ Property Item 	<ul style="list-style-type: none"> ▪ LE Property
Officers (LE)	Functionality that is used to manage officers, including assigned duty stations, activities, and other information.	<ul style="list-style-type: none"> ▪ Officers 	<ul style="list-style-type: none"> ▪ Officers
FETP (Non-LE)	Functionality associated with tracking field training history and scores for officers.	<ul style="list-style-type: none"> ▪ OLE Training Programs 	<ul style="list-style-type: none"> ▪ FETP Training & Evaluation ▪ Requirements for LEOs & Non-Commissioned Supervisors
Budget Tracking (Non-LE)	Functionality used to track budgets for the LE activities of the services supported.	<ul style="list-style-type: none"> ▪ Performance Measures ▪ Financial Transactions 	<ul style="list-style-type: none"> ▪ N/A
Financial Transactions (LE)	Functionality used to track LE financial transactions related to specific cases, such as undercover books for business fronts.	<ul style="list-style-type: none"> ▪ Financial Transactions 	<ul style="list-style-type: none"> ▪ N/A
System Administration (Non-LE)	Functionality related to the administration of the LE systems used.	<ul style="list-style-type: none"> ▪ Officers 	<ul style="list-style-type: none"> ▪ Supervisors of Record
HR Administration (Non-LE)	Functionality related to the management of LE staff (both LEOs and otherwise).	<ul style="list-style-type: none"> ▪ Officers ▪ Performance Measures 	<ul style="list-style-type: none"> ▪ Officers

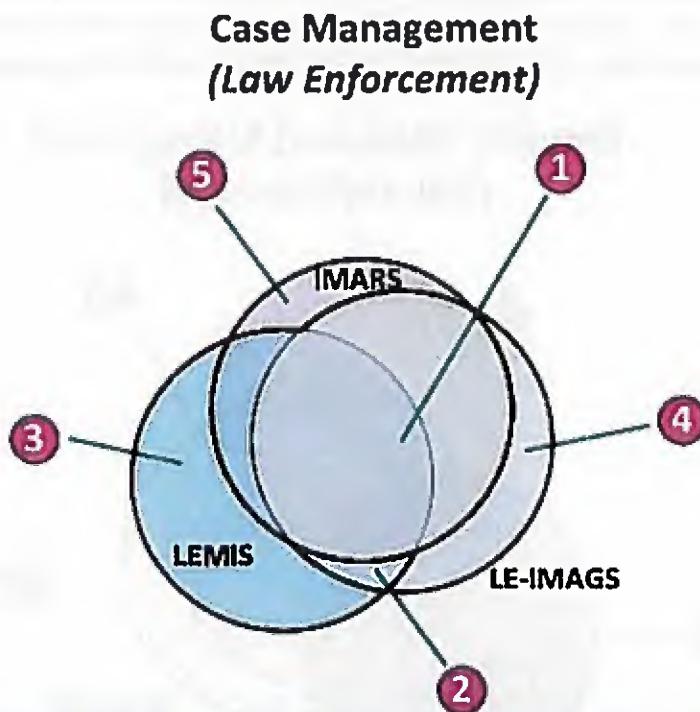
TABLE 9: FUNCTIONAL DOMAINS

In the following sections, the systems are compared across each of the identified functional domains. The intersections and overlaps in functionality are depicted visually via a Venn diagram and are further described in the diagram's accompanying table.

7.2.1 Case Management (LE)

Case Management stands out as one of the primary functional domains that LEMIS, LE-IMAGS, and IMARS were developed to support. As such, it is aligned with the majority of the data, business process, Performance, and service requirements under evaluation. With respect to Case Management, all three systems are very similar. All three systems allow for the collection, management, tracking, and reporting of the various types of information (e.g., evidence, officers, regulations & violations, involved

individuals, criminal intelligence, forensics analysis results, species information, and cooperating public individual information). All systems meet, or could be customized to meet, the data, business process, Performance, and service requirements necessary to effectively manage cases. The Venn diagram in Figure 7 illustrates this alignment between the three systems.



Comparison Area	Description
1	The core Case / Incident Management functionality between all three systems is very similar. In particular, all three systems handle the same information and have the ability to expand to include new data fields and workflows, although the IMARS system has the ability for codeless configuration, which greatly increases its ability for expansion and flexibility. The systems simply require initial configuration of data fields, workflows and reports relevant to the FWS business processes to function properly.
2	The overlap between a LEMIS case / incident and an LE-IMAGS case / incident is relatively small. The exception being the use of the same Corporate Master Table (CMT) which details all FWS stations, refuges, etc., and the FWS-specific Regulations & Violations available as data fields (e.g., The Endangered Species Act, The Lacey Act). Sharing of case / incident information between the two systems was not noted.
3	In LEMIS, a "case" is similar to an LE-IMAGS or IMARS "incident" in that it does not necessarily imply packaging information together to go to court. Also, the data contained within a LEMIS case are tightly coupled with other LEMIS subsystems and processes. For example, Wildlife Inspectors can begin a new case based on data in the eDeclarations module of LEMIS after a seizure has been made. Likewise, a case can be created from data imported from LEMIS' Bird Fatality subsystem. The primary overlap with IMARS is that with an initial configuration of the required data fields, workflows and reports, the Case Management functionality of the two systems are strongly related. The major difference noted is the necessary flow of this case data between and amongst other LEMIS subsystems (requiring more than just configuration of IMARS's data fields and workflows, but instead interconnectivity with other external systems/subsystems) to maintain the current-state LEMIS business processes. That said, this functionality can be implemented in IMARS with some custom configuration and development both on the parts of LEMIS and IMARS.
4	One unique feature of LE-IMAGS is the use of GIS functionality to select Easements and other Refuge information (via the Emergency Mapper system). It was noted that GIS capabilities are leveraged heavily in the creation of LE-IMAGS' incidents in order to assist Officers populating required information and plan accordingly. For example, locating how many cell phone towers are within a given location.
5	A unique advantage of IMARS over separate LEMIS and LE-IMAGS systems is the ability for IMARS to consolidate case data from across Interior (e.g., BLM, BIA, FWS), allowing for integrated tracking of cases, suspects, evidence, etc. This can improve data quality and enhance search capabilities when the

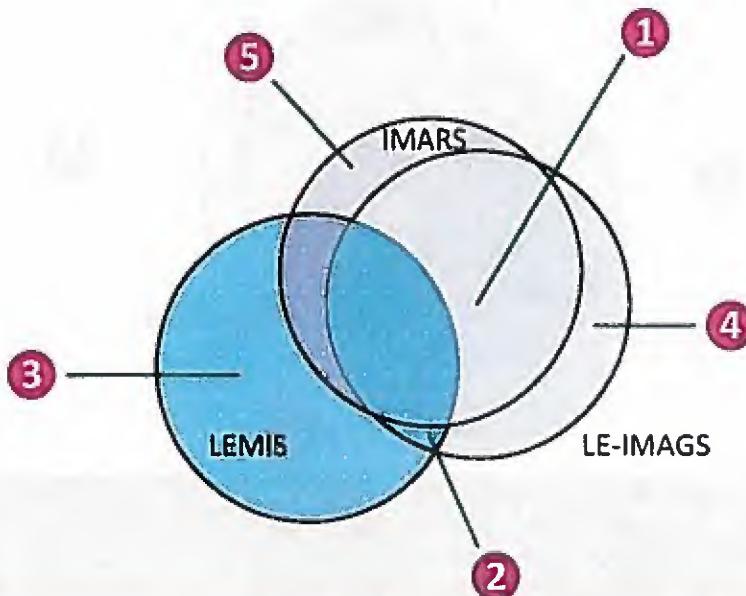
same suspect, property, or other case-related information is required by multiple organizations.

FIGURE 7: CASE MANAGEMENT (LE) COMPARISON

7.2.2 Property (Evidence) Management (LE)

Property (Evidence) Management includes the tracking and custody of any property collected as part of the investigation of a case. Similar to the Case Management functional domain, all three systems have closely aligned functionality with respect to the collection and management of evidence property.

Property (Evidence) Management (Law Enforcement)



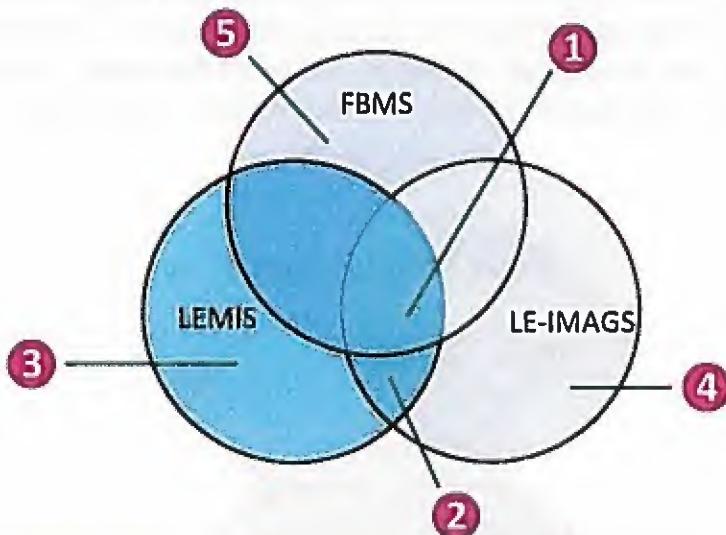
Comparison Area	Description
①	Similar to Case Management, all three systems have the ability to track the property associated with a Case (e.g., evidence). This includes the ability to associate evidence with multiple incidents, search for known evidence, etc.
②	The overlap between LEMIS' evidence and LE-IMAGS evidence is very limited. The primary link between the two being the Corporate Master Table (CMT) that defines where Officers are located and where incidents have occurred. Both systems also have the ability for evidence to become real property (e.g., seizures) and to track this relationship.
③	LEMIS has a fully realized Property Management subsystem. Examples of LEMIS-specific evidence needs are the inventory tracking for their National Eagle Repository warehouse as well as items seized by Wildlife Inspectors (including live animals). LEMIS also has an undercover operations process (managed in the UCBooks subsystem) that allows for tracking of property purchased as part of an investigation (e.g., fake storefronts). This evidence can become LE assets (e.g., an animal skin used as part of a training kit), be sold or even destroyed, all of which is tracked through LEMIS.
④	LE-IMAGS has robust evidence tracking functionality, including the ability to track evidence associated with an incident, past incidents, confiscations, etc. In particular, LE-IMAGS tracks property categories of: Drug, Drug Items, Vehicle, Firearms, or Other and includes details such as seizure dates, disposal methods/dates and evidence tag numbers. There is a significant overlap with IMARS's evidence tracking functionality.
⑤	As with Case Management data, IMARS allows for a more integrated, cross-department tracking of evidence, such as being able to search for a piece of evidence (e.g., a vehicle or seized firearm) across Bureau boundaries.

FIGURE 8: PROPERTY (EVIDENCE) MANAGEMENT (LE) COMPARISON

7.2.3 Property (Asset) Management (Non-LE)

The Non-LE Property (Asset) Management functional domain deals with the data and functionality required to track equipment and materials used by the LE organizations. This includes such things as equipment assigned to officers and materials used across cases. The FBMS system serves as the DOI system-of-record for Asset Management, and as such, LEMIS and LE-IMAGS were evaluated with respect to FBMS in Figure 9.

Property (Asset) Management (Non-Law Enforcement)



Comparison Area	Description
1	The intersection of Property (asset) Management, in the non-LE context, is a comparison of the LEMIS and LE-IMAGS systems against the DOI Property Management system-of-record, FBMS. There are definite overlaps between the three systems, with the primary intersection point being the tracking of program funds and equipment for personnel (e.g., firearms, vehicles). Although this equipment is typically LE-related property, the system functionality is inherently non-LE related (e.g., inventory tracking, label creation, purchase order tracking, responsible parties)
2	The overlap between LEMIS and LE-IMAGS asset tracking is primarily in terms of business processes. That is, both help track property associated with individual Officers and are facilitated through the central coordination of a Region 9 point of contact. That said, the two systems do not currently share similar functionality or connectivity, either amongst themselves or with FBMS (other than manual processes or reports). Each system tracks the property differently and has different reports / interfaces to view this data.
3	The asset tracking of FWS Officer equipment (e.g., firearms, vehicles) is currently centralized through a manual process in Region 9. The Region 9 Fleet and Property Manager coordinates with FBMS to receive inventory numbers and stickers which are then coordinated through another individual for entry into LEMIS. All accountable property is assigned to a specific Special Agent through Form DI-106 or DI-104.
4	LE-IMAGS' asset management centers on equipment for LE Officers. The same Region 9 coordination (see the LEMIS detail) is followed; however, this information from FBMS is then entered and tracked through the LE-IMAGS system.
5	FBMS is DOI's system-of-record for Property Management and was introduced into FWS in November 2011. Aside from asset tracking, FBMS also provides interior-wide budget information, fund tracking and financial reporting functionality.

FIGURE 9: PROPERTY (ASSET) MANAGEMENT (NON-LE) COMPARISON

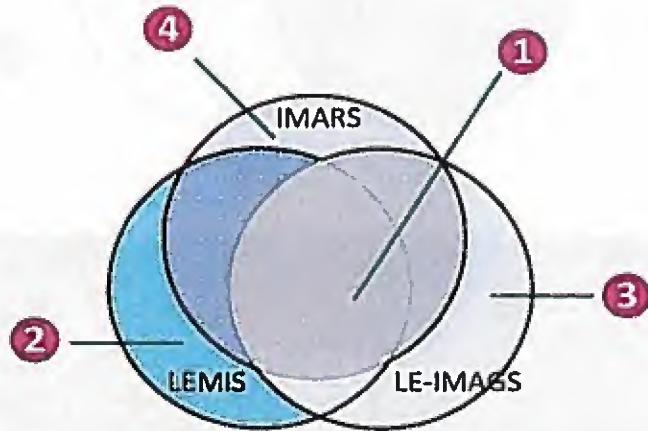
7.2.4 Officers (LE)

The Officers functional domain deals with the ability to manage information related to LE Officers at the Local, Zone, and Regional levels. This includes demographic information about the officers (name, duty station, trainings and certifications) and supports the other functional domains by:

- Relating officers to specific cases, either as an investigator or supervisory officer,
- Identifying the person to whom LE property has been assigned,
- Serving as an electronic identity record for access control to other data within the systems, and
- Acting as the subject of Field Training programs (both as a student and an instructor).

All three systems provide extensive support for the management and tracking of Officer information. The primary differences between the systems are in the level of detail collected and the types of reporting available on Officers, for example an Officer's salary or the number of vacant Officer positions in a Region. Figure 10 provides a greater detail on the similarities and differences between the three systems.

Officers (Law Enforcement)



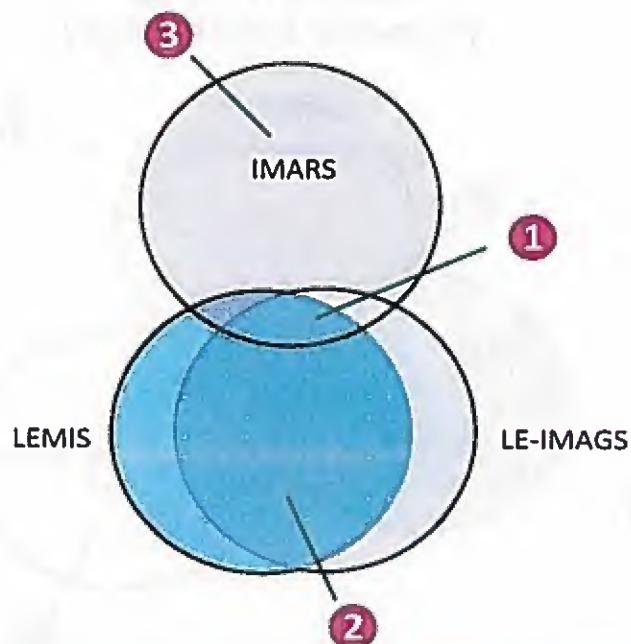
Comparison Area	Description
1	All three systems, LEMIS, LE-IMAGS and IMARS have similar functionality and data associated with LE Officers. Specifically, the ability to manage the system accounts, access rights, associated property (e.g., firearms), duty stations, training, history, medical data, photos, etc.
2	An example of a LEMIS' unique Officer functionality/data is its ability to manage Officers' salary data and support the salary planning process.
3	LE-IMAG Officer functionality includes the ability to track officers down to the specific National Wildlife Refuge at which they are stationed. It also provides reports on the current open officer positions, individuals assigned to positions, and open requisitions for hire across the country through a standardized report.
4	An example of LE-IMAGS' unique Officer functionality/data is the ability to associate Officers with their specific National Wildlife Refuge as their primary duty station. Another example is LE-IMAGS ability to report on the number of current "open" Officer needs across the country through a standardized report.

FIGURE 10: OFFICERS (LE) COMPARISON

7.2.5 FTEP (Non-LE)

One of the greater areas of deviation between LEMIS/LE-IMAGS and IMARS is the support for field training and evaluation of Officers. All three systems provide the ability to report on an officer's certifications and completed training requirements. However, both LEMIS and LE-IMAGS have integrated more advanced training features and functions into their systems. These include the ability to track training classes and instructors, the ability for instructors to grade officers on a daily basis, and the ability to use the training completion information to provide greater system access rights. The following diagram and table (Figure 11) provide additional details on the functionalities available across the systems.

Field Training Evaluation Program (FTEP) Management (*Non-Law Enforcement*)



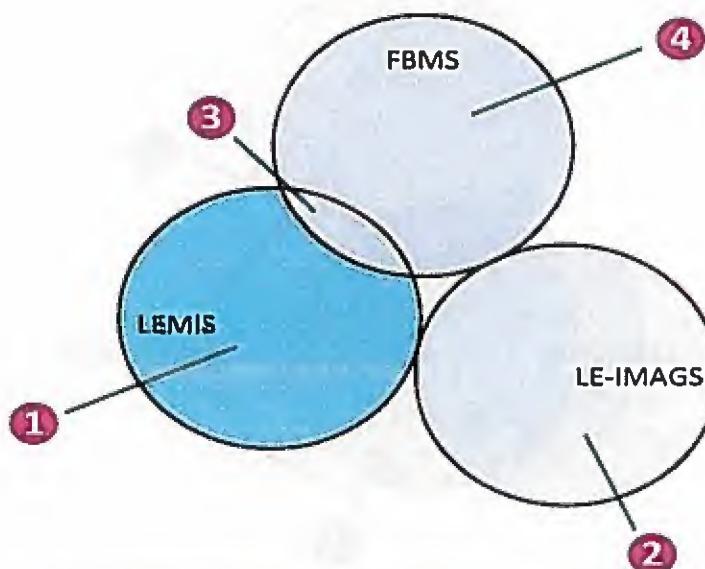
Comparison Area	Description
1	The primary overlap between all three systems is the fact that each tracks the individual Officers and their associated information, such as property, certifications/training, location, etc.
2	Both LEMIS and LE-IMAGS have "FTEP" functionality via custom user interfaces or subsystems. This functionality is akin to more traditional training management systems and is not directly tied to the case management. Functionality includes the ability for Field Training Instructors to create new courses, identify the incoming Officers that will be in attendance, and score those Officers' daily progress (e.g., attire, Performance). These subsystems are also entry points for the new Officers' accounts to be created within the systems. Functionally, LEMIS and LE-IMAGS are nearly identical, only varying in the type of data collected.
3	While IMARS tracks certifications and training completions for officers, it is not envisioned to provide the detailed training and progress/scoring functions available in LEMIS and LE-IMAGS.

FIGURE 11: FTEP (NON-LE) COMPARISON

7.2.6 Budget Tracking (Non-LE)

The Budget Tracking functional domain includes the ability to align financial transactions with FWS budget information. The budget tracking system-of-record at DOI is FBMS, however FBMS does not currently provide the ability to track actual spending and reconcile it with this planned budget (note: this functionality is being explored with an estimated time-frame of two years). FBMS does however provide detailed information on the planned budgets for FWS in the area of LE. As such, LEMIS has developed a robust set of functions that extend existing budget information from FBMS to the level of detail required for reconciling planned vs. actuals. In contrast, LE-IMAGS does not track budget information; the closest budgetary information was in relation to the tracking of open Officer positions across the Regions. The following diagram (Figure 12) provides more details on the overlap of functions in the three systems.

**Budget Tracking
(Non-Law Enforcement)**



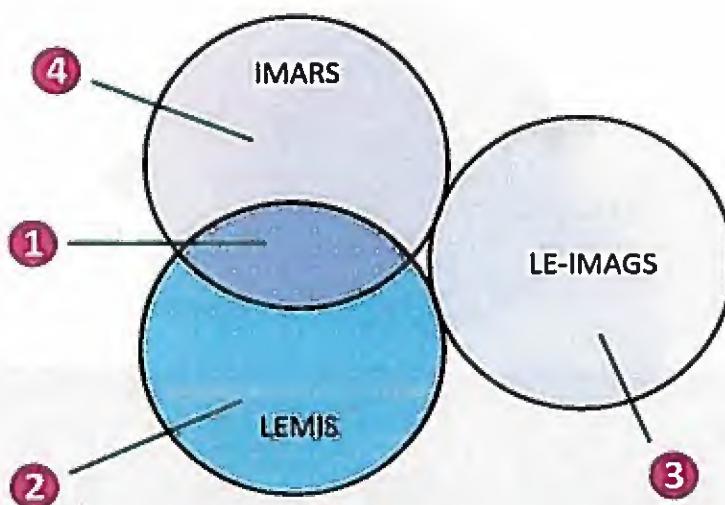
Comparison Area	Description
1	LE-IMAGS has a very robust set of functionality around budget tracking, including the ability to reconcile planned vs. actual expenditures through a distributed workflow process across its Regions. The "Administrative Management System" (AMS subsystem in LEMIS) provides the ability to set targets, run projections and even account for Salary Planning and Payroll.
2	There were no observed Budget Tracking functionalities within the LE-IMAGS system other than being able to track where open requisitions existed across the country for job opportunities and where assets are currently located. There were no perceived overlaps between LEMIS and LE-IMAGS in this area either.
3	At this point, the overlap between LEMIS and FBMS is in tracking funds related to the acquisition of assets (see "Property (Asset) Management" functional domain for more information). In addition, both systems contain information on the planned budgets for FWS.
4	Currently, FBMS does not manage budget information to the organizational level necessary to allow fine grained tracking of financial information of the detail available in LEMIS. However, FBMS is planning to add budget tracking and reconciliation of "plans vs. actuals" within the next two years. When this happens, there will be a greater overlap in functionality with LEMIS.

FIGURE 12: BUDGET TRACKING (NON-LE) COMPARISON

7.2.7 Financial Transactions (LE)

There are several categories of financial transactions that were noted during the study. For example, buying items for an undercover operation, general spending funds (not to exceed \$5000) for investigations and acquiring new assets for Officers. Both IMARS and LEMIS displayed the ability to track financial data associated with investigations and Officer property, however LEMIS' Undercover Books (UCBooks) module provided additional functionality to support the daily accounting needs of a business. The LE-IMAGS system allows Officers to associate a "Cost to Government" element to each incident, but no unique or specialized financial transaction functionality was noted. The following diagram (Figure 13) provides more details on the overlap of functionality.

**Financial Transactions
(Law Enforcement)**

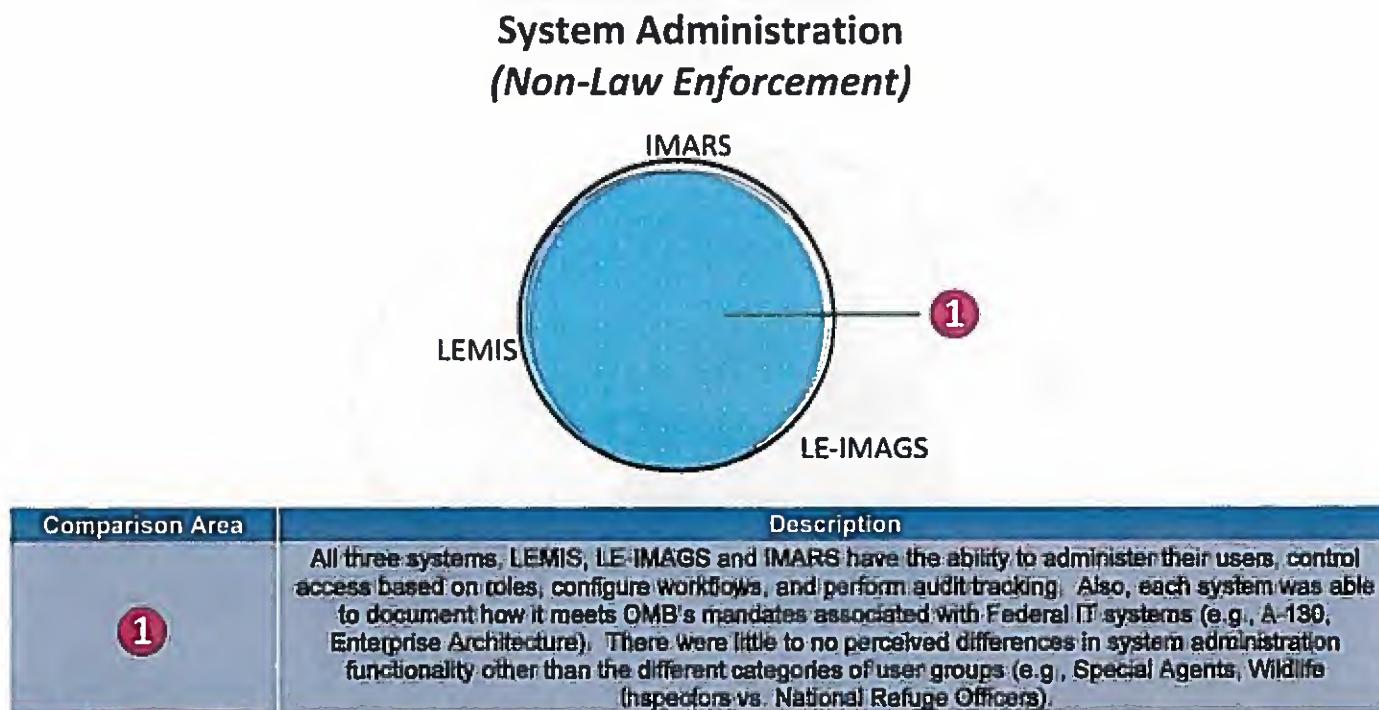


Comparison Area	Description
①	There are several categories of financial transactions that were noted during the study (e.g., buying items for undercover operations, general spending funds for investigations, acquiring new assets for Officers). IMARS provides the ability to map nearly any data element or document to an incident, including any financial transactions or receipts that may be associated with those incidents.
②	One unique financial transaction capability in LEMIS is its UCBooks (Undercover Books) subsystem. UCBooks provides a "Quick-books" like set of features to allow for the day-to-day management of undercover business (e.g., eCommerce Websites, retail locations). Another financial aspect in LEMIS is that each case is able to track Officers' purchase orders totaling up to \$5000 per case. And finally, the eDeclarations module allows Wildlife Inspectors to ensure that proper fees have been paid for import/export licenses.
③	Financial transactions were not noted as a major capability within the LE-IMAGS system. Aside from tracking the property associated with Officers or the ability to estimate the "Cost (S) to Government" of the incident (e.g. destruction/defacement of property).
④	While IMARS has strong capabilities in relation to its ability to pull in information from external systems and to expand its existing data holdings, it is difficult to see how functions similar to the UCBooks functionality would fit into the IMARS framework. IMARS can link a business ledger file (such as an Intuit® QuickBooks file) to a case, but providing a data entry and modification interface to the contents of the file are not within the scope of the IMARS system.

FIGURE 13: FINANCIAL TRANSACTIONS (LE) COMPARISON

7.2.8 System Administration (Non-LE)

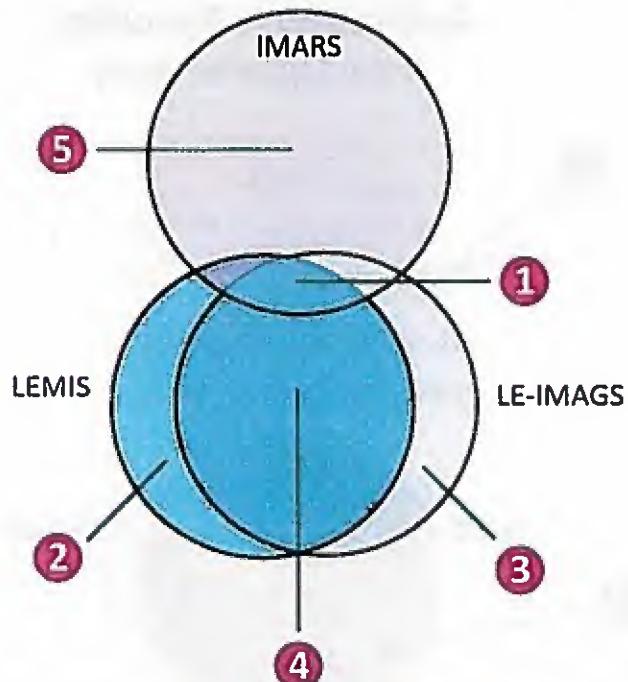
The System Administration functional domain deals with the administrative "back-office" functionality such as account creation, configuration, access control, auditing, etc. Each system provides role-based access functionality based on the user's credentials and workflow. For LEMIS, this includes the ability to provide multi-level access control, such that an individual with access to a case can also see all associated case reports, but an individual that is only assigned to a case report may not have access to the entire case. IMARS provides even more configurability around access control, allowing customized workflows and rules to be configured for incidents, cases or nearly any data item contained within either. LE-IMAGS also controls access to incidents and incorporates a submit/review/approve workflow between the Refugees, Zones and Regions.



7.2.9 HR Administration (Non-LE)

Another area where LEMIS and LE-IMAGS differ from IMARS is in the functional domain of HR Administration. For example, prior to the deployment of QuickTime, LEMIS' "Activity Reporting" module provided the capability for OLE employees to record daily hours and generate a time and attendance report that was forwarded to the employee's timekeeper and logged as the employee's official timesheet. After the deployment of QuickTime, only special agents were required to use the Activity Report module - primarily for the generation of Law Enforcement Availability Pay (LEAP) reports (biweekly and annual certification). In addition, many OLE managers, who supervise Special Agents (i.e., RACs and ASACs) use data output from the Activity Report module as part of the Performance appraisal process. Other functional similarities and differences are detailed in Figure 15.

Human Resource (HR) Administration (*Non-Law Enforcement*)



Comparison Area	Description
1	The primary overlap between all three systems is the fact that each tracks the individual Officers and their associated information, such as property, certifications/training, location, etc.
2	A unique HR-centric functionality of LEMIS is the ability to track Officer's salary data as part of the budget planning process.
3	One unique function of LE-IMAGS is the ability to search on the number of open job needs across the country by role (e.g., Zone Officer) and location (e.g., Regions 1 – 9).
4	The LEMIS and LE-IMAGS systems currently serve as FWS / Office of Law Enforcement's primary HR system. Although the staff being managed are LE-centric, the general functionality shown in LE-IMAGS and LEMIS was noted to be more closely related to a traditional HR system (e.g., tracking open job opportunities and current employee salaries).
5	IMARS does not currently contain HR functionality to the same levels that LE-IMAGS and LEMIS support HR activity. Furthermore, such functions are most likely not in scope of the IMARS program.

FIGURE 15: HUMAN RESOURCE (HR) ADMINISTRATION (NON-LE) COMPARISON

7.2.10 Authoritative Reporting (LE)

The area of Authoritative Reporting covers the external requirements for DOI to provide relevant law enforcement data to the broader LE community. Two primary examples of external LE reporting requirements are DHS's Information Sharing Environment (ISE), which collects data relevant to Suspicious Activity Reporting (SAR), and the FBI's National Incident Based Reporting System (NIBRS), which aggregates multiple sources of LE data from the Federal, State and Local levels. As DOI's LE system-of-record, IMARS is the primary system responsible for consolidating DOI's LE data and providing a single, authoritative source of LE data externally. Both the LEMIS and LE-IMAGS systems collect the necessary data to meet the FBI's NIBRS requirement (e.g., offense, property, victim) but neither currently demonstrate functionality to support the flagging of incidents as SAR-related, nor the

connectivity to share this data with DHS's ISE. These functional similarities and differences are detailed further in Figure 16.

